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AMERICAN BEE JOURNAL

SEPTEMBER

1924



BROAD MISSISSIPPI BOTTOMS WHERE THE FALL FLOWERS ARE GIVING A GOLDEN HARVEST.

BEEKEEPING IN OREGON—H. A. Scullen.
OVERSTOCKING—Jay Smith.

DEVELOPING MARKET—Selling to Grocer—G. R. Watt
SEALED AND UNSEALED BROOD—J. H. Merrill

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500—4¼x1¾ beeway	6.40	5.75
1000—4¼x1¾ beeway	12.60	11.25
100—4¼x1½, plain	1.20	1.10
500—4¼x1½, plain	5.75	5.00
1000—4¼x1½, plain	11.25	9.90
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Orders for \$10.00 and over	10 per cent
Orders for \$25.00 and over	15 per cent
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GLASS AND TIN HONEY CONTAINERS

Prices are net, no discount on containers

2½-lb. cans in crates of 100	\$4.00 a crate
5-lb. pails, in crates of 100	\$6.50 a crate
10-lb. pails, in crates of 50	\$5.00 a crate
160-lb. kegs	1.20 each

For packing extracted honey we recommend our 160-pound keg. We prefer to purchase
both clover and buckwheat honey packed in these kegs.

GLASS JARS WITH GOLD LACQUERED, WAX-LINED SCREW CAPS

8-oz. honey capacity, 3 doz. per carton	\$1.35 per carton
16-oz. honey capacity, 2 doz. per carton	\$1.20 per carton
3-lb. or quart capacity, 1 doz. per carton90 per carton

HOFFMAN & HAUCK, Inc.

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Untested, 75c each; 50 for 70c each; 100 for 65c each

Tested, \$1.50 each; Select Tested, \$3.00 each

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Honey Containers

2½-lb. cans, per carton of 100	\$4.25
5-lb. pails, per carton of 50	\$3.50
5-lb. pails, per carton of 100	\$6.75
10-lb. pails, per carton of 50	\$5.00
Above packed in cartons which are dust proof, light and easy to handle, keeping your cans and pails clean until you are ready to use them.	
5-lb. pails, per case of 12	\$1.10
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60-lb. cans, 1 per case	.90
60-lb. cans, 2 per case	1.25

Above packed in wooden reshipping cases.

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8-oz. honey capacity, tall or fluted, per case of 24	\$1.05
8-oz. honey capacity, medium, per case of 24	.95
16-oz. honey capacity, tall or fluted, per case of 24	1.35
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The Diamond Match Co.'s Factories and Yards at Chico, Calif., cover 220 acres.

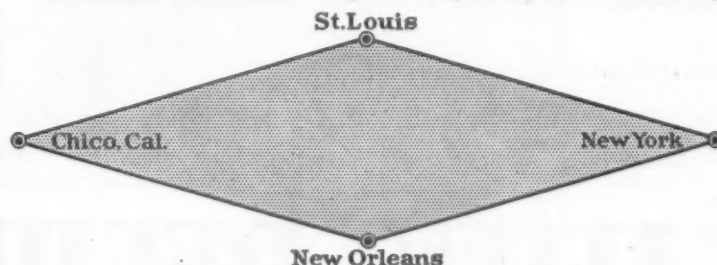
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To meet the ever increasing demand for "Diamond" Beekeepers' Supplies, distributing warehouses have been established at Woodhaven, New York, (Hoffman & Hauck); St. Louis, (The Diamond Match Co.); New Orleans, (The Diamond Match Co.) This will enable Beekeepers to obtain their supplies promptly and at a greatly reduced cost

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Diamond Hives, etc., which are manufactured from Sugar Pine from our own forests present every desirable feature, and embody every improvement in design and betterment in construction. Diamond Hives have a reputation for high quality well nigh world-wide.

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Write the Diamond Match Co., Apiary Dept., Chico, Calif., for free catalog. Send all orders and inquiries to Chico, Calif. Shipment will be made from nearest distributing point named above.

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Successful beekeepers have known for years that the first necessity for wintering bees is large stores of honey in each hive in fall. Little for food, more for turning in to heat in winter and much for spring brood rearing.

Nothing hard about that! Fortunately every beekeeper can do this. If every beekeeper will follow this plan this fall, winter and spring losses can largely be eliminated. Nothing secret about that. It's just advice that has not been accepted by many beekeepers. Not all big beekeepers follow this advice either, but not all big beekeepers are good beekeepers. Remember Dr. C. C. Miller followed this plan even with cellar wintering and he never kept many colonies of bees.

A great quantity of stores will not insure perfect wintering unless other conditions are made favorable to the proper use of this honey. It should not be largely consumed in winter, but the bees should so be handled that it will largely be used in spring. This can be governed by the presence of young bees, a good vigorous queen and ample protection for your own locality and winter conditions.

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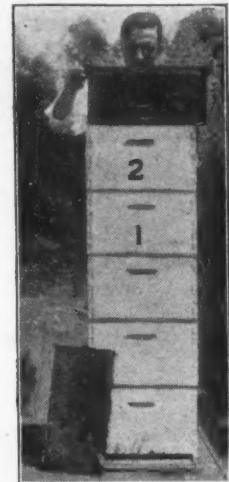
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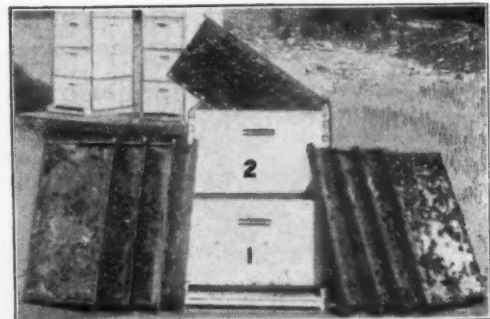
Everyone who purchases "How to Succeed with Bees"—or places an order for Lewis BEEWARE—will also receive, free of charge for a year, the regular issues of our BEE-CAUSE—a distinctive Lewis service of helpfulness to beekeepers.



You can get big crops of honey—100 pounds per hive—and stop losing bees each winter.

It is very necessary to leave with each hive this fall enough honey to last until nectar gathering time in 1925—50 pounds. Less left means spring weather may prevent nectar gathering and cause starvation even in fruit bloom time. Many populous colonies die during inclement spring weather, being weakened through poor stores.

The combs of capped honey shown below are the kind to leave each 2-story colony for outdoor wintering and will mean colonies like the above next honey season. See where the winter brood nest is in the honey flow.



A colony with ample stores for wintering outdoors

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SEPTEMBER 1924

(64)?

BEEKEEPING IN OREGON ✓

By H. A. Scullen, Oregon Agricultural College.

IN general, I would say that Oregon is just an average state, from the standpoint of honey production. We have our problems as well as our advantages. My advice would be to think twice before moving from your present location with which you are familiar to a new location, whether it be Oregon or any other state where climate, flora, and all are different.

As indicated above, Oregon can present advantages for the honey producers which are equal to those of the average state, and in addition a climate which is free from extremes of cold and heat, electrical storms, cyclones, and earthquakes. On top of this there are unexcelled opportunities for enjoying outdoor sports when not working with the bees. This subject need not be exaggerated in the least, to be the most alluring to the fisherman and hunter.

The writer will refrain from diverging further from the field of beekeeping and will present briefly the present and possible production of honey in the state, and the climatic, soil and physiological features.

An examination of map No. 1 will show that Oregon is roughly divided into the following: First, a narrow coastal strip west of the Cascade Range; second, the Willamette and Lower Columbia Valleys; third, the arid section east of the Cascades, which is somewhat broken up by the Blue Mountains; fourth, the Umpqua River valleys of southwestern Oregon.

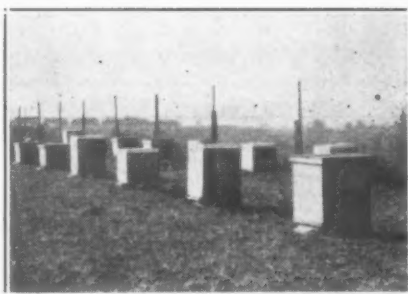
Each of these regions has its distinctive flora as a result of a difference in temperature, rainfall, soil and other factors.

An examination of Map No. 4 will show the difference in the rainfall in different parts of the state. Please note that the annual precipitation ranges from less than 10 inches to nearly 8 feet. About 80 per cent of the rainfall in Western Oregon comes during the winter months. There is a decided shortage during late June, July and August. Please note by the map that the heavy rain-

fall is on the west side of all the mountain ranges.

Map No. 3 shows the soil condition of the state as it is related to acidity. There is a decided shortage of lime condition in the Willamette Valley and extensive shipments of lime are being brought from southern Oregon to the northwestern part for use upon acid soils.

Map 2 shows the so-called "vegetable area" as worked out by Livingston and Shereve. This will be referred to later.



Home apiary of Valentine Abadie, Hillsboro, Ore. Typical location in the Willamette Valley

The above maps are shown to assist in making clear the distribution and factors affecting nectar secretion from the leading honey plants, which will be treated separately.

First in importance in the state are the alfalfa and sweet clover. Since the two are so closely associated they will be treated as a single flow. The flow from these plants is confined to those areas under irrigation as shown in Map 5. Alfalfa is grown in a limited way in the Willamette Valley, but is of very minor importance for honey production. Sweet clover does not reseed itself satisfactorily in northwestern Oregon. The reasons for this are, 1st, that stem rot kills a large per cent of the old stalks before seed is produced. 2nd, the seed which is produced sprouts in the fall and is either killed by frosts or is crowded out by the heavy growth of grass which grows during the winter and early spring.

Alfalfa weevil has been a serious menace to alfalfa in Malheur County and the neighboring districts. It has spread north and west to Baker, but is not yet reported in any other sections of the state. As a result there has been a decided curtailing of honey production in Malheur County.

The Central Oregon district under irrigation, as well as the Baker district, has an elevation between 3,000 and 4,000 feet, while the Umatilla district has an elevation of less than 500 feet. The growing season is much shorter in the higher elevations. There, however, seems to be very little difference in the quality of honey produced, although it is generally believed that higher altitudes produce a higher grade of honey.

Second in importance to the alfalfa-sweet clover district is the fireweed section. Although this plant is common throughout the western xerophytic (dry) evergreen forest area (see Map 2), it is not so dependable as in the area known as the Northwestern hydrophytic (moist) evergreen forests. By comparing Map 4 with Map 2 it will be seen that the annual rainfall must run close to 50 inches before this plant yields at its best. For one contemplating locating for fireweed honey it is important that these maps be studied very carefully.

A good example of the effect of rainfall upon fireweed yield was illustrated this past summer when the beekeepers in western Columbia County received very little from this plant, although farther west in Clatsop County a reasonably good yield was received. A study of the above map throws considerable light upon the facts.

Attention should, however, be called to the fact that not all locations indicated as receiving an average of 50 inches of rain are equally reliable for honey production from fireweed. Other conditions must be considered, especially that of soil and soil moisture.

The opening up of the Roosevelt Highway, which will parallel the coast west of the Coast Range, will open up many excellent fireweed locations.



Topographic map of Oregon showing plains, rivers and mountains.

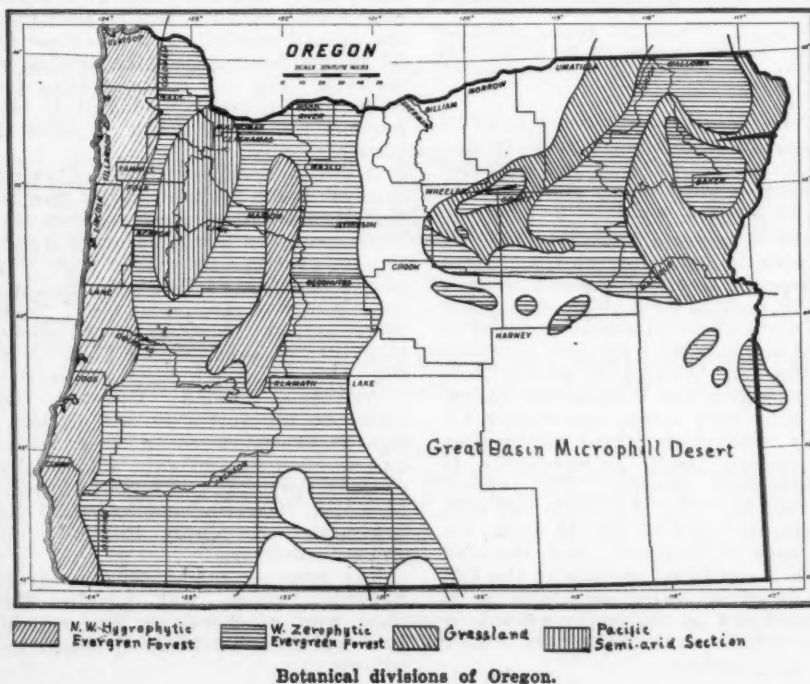
The third important district from the standpoint of honey production includes the Willamette Valley and a portion of the Lower Columbia west of the Cascade Mountains and includ-

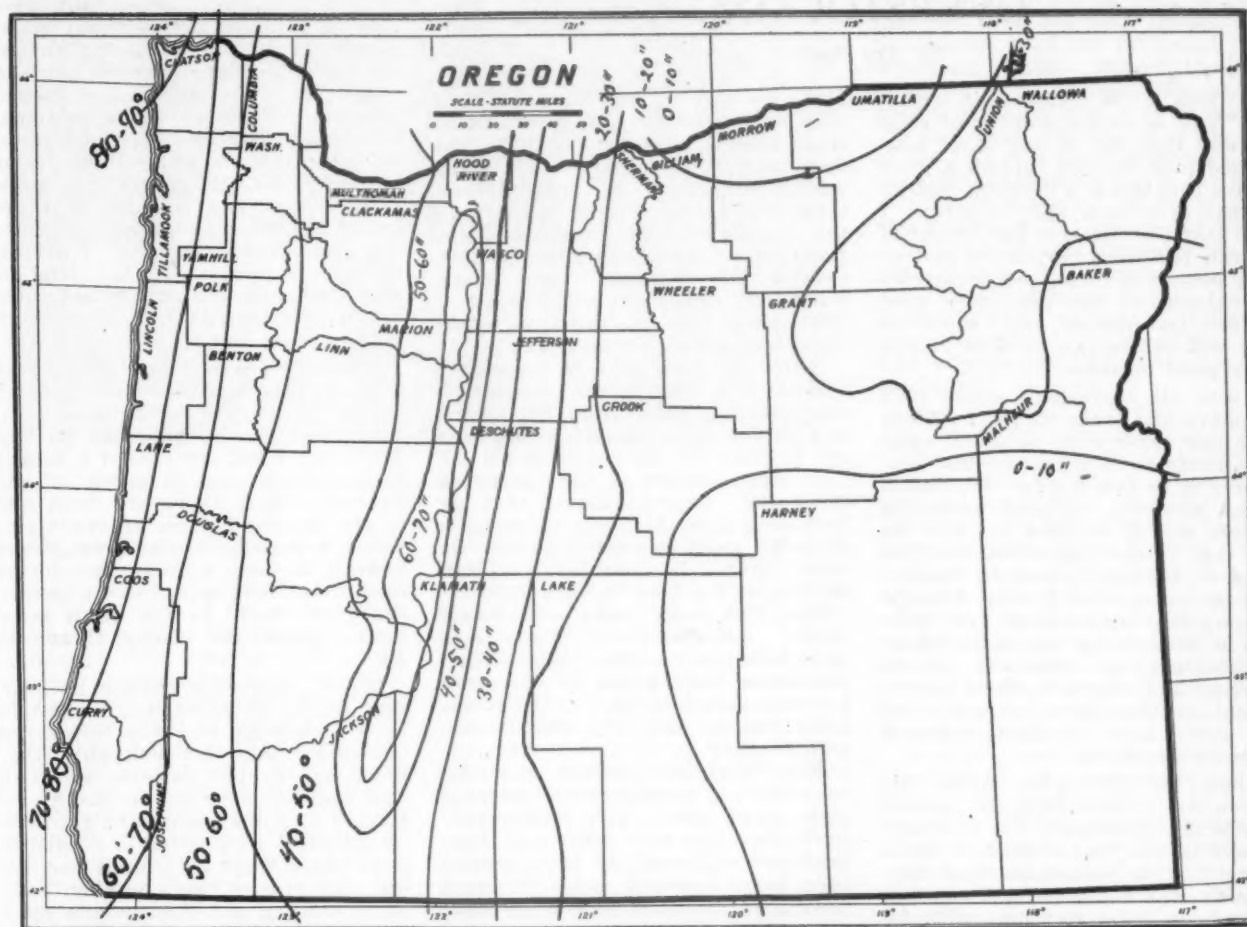
ing a portion of Columbia County. Although there is considerable variation in the honey flora available in this district probably the most outstanding surplus-producing plant is

clover, both white and alsike varieties. A close second, however, to this plant in most sections, is vetch.

Both alsike and red clover are grown rather extensively throughout the valley for seed production and hay. Where inoculation is used in connection with the liming of the soil, good yields are available from alsike. However, as indicated previously in this article, the soil is naturally acid and must be limed artificially. The counties of Washington, Marion and Linn are probably the most outstanding counties in promise for honey production.

Common vetch has been raised extensively for some time throughout the Willamette Valley as a seed and forage crop. Although this plant many years produces considerable nectar it is not as dependable as the so-called Bulgarian vetch, which is now fortunately becoming more and more common. The latter vetch seems to be better adapted to our soil and climatic conditions, and is less subject to attacks by aphids. What is still more important to the beekeeper is the fact that the Hungarian vetch is a much heavier and more reliable yielder of nectar. The bulk of the nectar gathered from both the common and Hungarian vetch is produced by extra-floral nectaries, which means that the bees





Distribution of mean annual temperature for Oregon.

start gathering nectar before the plant is in bloom, and under favorable conditions are able to collect nectar for several weeks during May and early June.

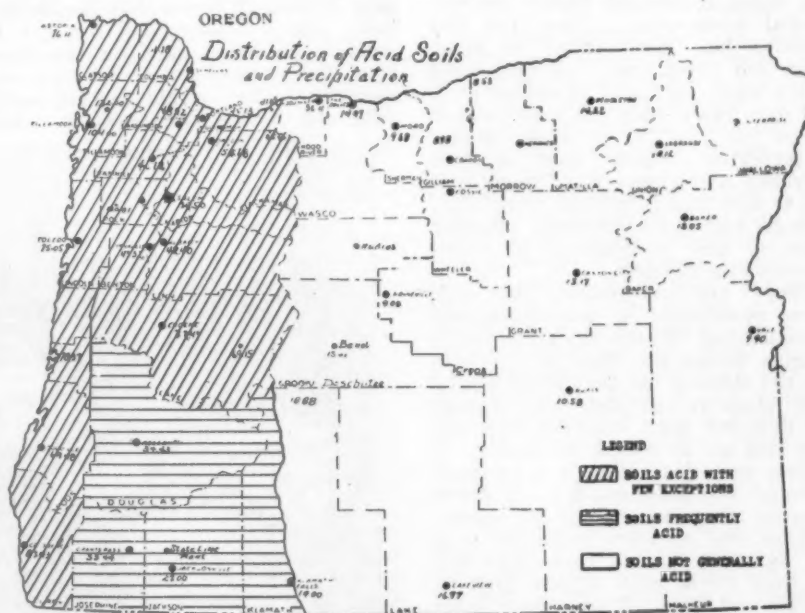
A certain amount of surplus honey is commonly stored from a few other plants, as, for example, in Eastern Oregon, the Rabbit bush (*Chrysothamnus*), wild busk wheat (*Eriogonum dichotomum*), dandelion and locust. In western Oregon some of the important secondary plants which frequently produce a surplus are Oregon and Vine maple (*Acer macrophyllum*, and *Acer circinatum*), dandelions, fruit blooms, cascara (*Rhamnus purshiana*) and French pinks (*Centaurea cyanus*).

Briefly, the disease situation in Oregon is as follows: American foulbrood is found commonly in the Malheur district, Umatilla district, Klamath County district, and throughout the Willamette Valley. It is found in a very limited way in Central Oregon, and has been reported in Douglas County. European foulbrood is found extensively in Klamath County and in western Oregon from Douglas County north to and including all the lower Columbia Valley.

SUMMER HONEY SELLING

If you live on a highway, locate your bees where tourists can see them. Then put up a honey sign or build a stand where you can keep jars of honey in sight. Put up a

sign, "Honk and We'll Come," in the stand and be prompt in answering calls. Prices stated on signs will help. It is a good plan to erect a sign some distance down the road both ways.—(L. H. Cobb in Capper's Farmer for June).



Map of Oregon showing acid soils and rainfall. The dots and figures indicate the rainfall and the cross lined areas the soils.

✓ OVERSTOCKING

By Jay Smith.

IN 1906, E. W. Alexander wrote: "Now as to the number of colonies that this or any other fairly good location can furnish a good surplus for; this is a problem that no one has ever been able to solve. I know that this location has furnished and can furnish a surplus of just as many pounds of honey per colony for 750 colonies in one yard as it ever did for a less number, and I think the same will yet be proven true of any fairly good location."

I wish all beekeepers would read the above and study it, for I believe there has never been so much valuable information given to the beekeepers in so few words. But information does one no good unless he believes it. If it were not for the fact that I read the above and believed it, I would not be in the bee business today, or if I were, I would have my bees scattered all over creation in little dinky outyards where the bees can be neglected, stolen, burnt up and swarm to their heart's content, if they have hearts, which they don't seem to have, when it comes to swarming.

When Mr. Alexander wrote his opinion on overstocking, he caused considerable comment, but although he gave figures that seemed to prove his point, few beekeepers took him seriously, and many are still running outyards in good locations with 50 colonies in a yard where they could, I believe, run 500 or 1,000 and get just as much honey per colony.

Of course, it is difficult to know when you have too many colonies in one apiary. However, I never saw an apiary that I believed contained too many colonies. As far as I know there has never been any test made that was worth while, in determining this most important factor in successful beekeeping. Thus far this question has been settled by argument and psychology. A beekeeper gets a good crop and is encouraged, and gets more bees. A poor season comes on and he at once blames overstocking. Next year he runs outyards and there is a good year and to him that is positive proof that he must run small outyards. Having come to this conclusion, he never experiments further.

There are two points that are often overlooked in this matter of overstocking. One is the tremendous acreage within the flight of the bees and the other is the amount of nectar each blossom secretes. To discuss the first we must consider how far bees will go in search of nectar. I believe that five miles is a common distance for bees to fly. If there were an abundant supply of nectar, perhaps few of them would go that far, but even in such cases, you will see bees circle around, rise high in the air and start off on a long journey. This is their nature. The Creator made the bees to fertilize the

blossoms and if they did not have this instinct to fly long distances at times and at others to stop at the first flower they come to, things would not work out right. When there was nectar in abundance, only the flowers near the bees would get fertilized. I have seen bees fly right over a mile of sweet clover which was fairly dripping nectar, to get a little pollen and nectar from some little insignificant wild flower.

While in California, a beekeeper told me that the nearest orange tree was just six miles from his apiary and as far as he could see his bees got as much orange honey as did the bees located right in the center of the grove. I have observed that my bees work apple blossoms in orchards six miles away as readily as they do those right over their hives. I can distinguish my bees by their color.

Now how many acres is a 10-mile circle? About 50,000. If one acre in a hundred was into nectar-bearing plants there would be 500 acres for your bees to work on. I am satisfied that an acre will support several colonies.

Mr. Doolittle reported that his bees made a surplus from basswood eight miles away. In a sixteen-mile circle there are over a hundred thousand acres—enough to keep several bees busy, I should say. In sweet clover, for instance, how many blossoms to the acre? Never counted them, but there would be several million.

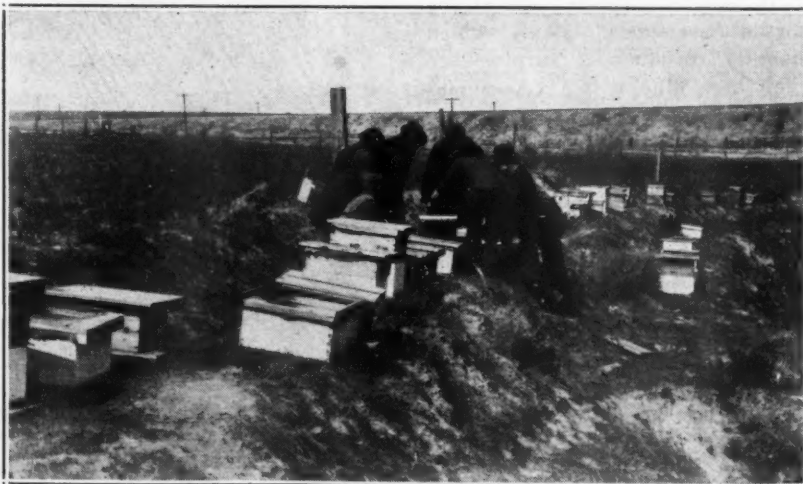
One summer I photographed a number of bees working on blossoms and I observed some interesting things. I was astonished to see how often a bee visited a blossom and secured nectar. Sometimes when a bee had worked a blossom another would come immediately, but it did not take it long to learn that the flower had been pumped dry. It would sometimes light on the blossom and immediately leave, and sometimes they would merely come near the flower and leave it. But

after a very short time, usually from 1 to 2 minutes a bee would alight on the blossom and sip the nectar. On the blue vine this was kept up nearly the whole day and it seemed that the flowers kept up a continual secretion. The blossoms seemed to act like an open well. If no water is drawn out, the water reaches a certain level and no more runs in, but if the water is drawn out more will immediately run in. Where a blossom is pumped all day long, it must certainly produce considerable nectar. It would be interesting if we had some way to measure it.

From the above it can be seen that it would take a tremendous hoard of bees to gather the nectar in an ordinary locality. No rule can be laid down, but I will say that if I wished to keep bees, say in either of the Dakotas, where there are from five to ten thousand acres of sweet clover in a ten-mile circle, I would not hesitate to keep a thousand colonies in one location, and I don't believe the yield would be cut down more than a pound per colony, if any at all.

When I started in the bee business here nearly 25 years ago, I was told by a beekeeper who was considered one of the best in this locality, that from five to ten colonies were all that could be kept in one locality. I started with one colony and got little or nothing. I increased to 25 and in good years I got 50 pounds per colony, and in poor years nothing. Then after reading Mr. Alexander's opinion, I forgot the overstocking question and kept on increasing. And during the last few years, with 300 colonies and 600 one-frame nuclei, things seem to work just as they did when I had half a dozen colonies. In poor years they get nothing. In good years they fill up in a hurry, even the nuclei crowding out the queens so they have no room to lay. If I should desire to keep double the number I now keep, I would not hesitate to keep them all in one apiary, even in this poor honey-producing section.

If we get our minds on our bees, give them a chance, leave plenty of



A neglected apiary in typical Oregon bee country.



A class in beekeeping at the Oregon Agricultural College, in one of author's apiaries.

stores in a large brood nest, have good young queens and give proper winter protection, we will get good crops if we are in good localities, whether we have one colony or a thousand. I once heard a beekeeper say that he got fairly good crops till another man moved a hundred colonies within a mile of him and his bees did not have enough after that. He wanted to know what I would do under the circumstances and I said I would increase my bees and pay no attention to him, and furthermore, if he had had five hundred colonies in his apiary instead of only one hundred, people would be bluffed and would not want to move in close to him.

Indiana.

PROFIT IN BEES IN THE WILDS

By Florence L. Clark.

There are many apiaries in odd places, but it would be hard to find one more curiously located than that of J. C. Hatch near Rockbridge, Wisconsin. As it happens, however, the very oddity of the environment has had a most important bearing on the success of the apiary, bringing home to the visitor to the Hatch bee farm an idea of how natural conditions can be made to lend themselves splendidly to the business of the beekeeper.

The country about Rockbridge is wild and beautiful. A great narrow sandstone ledge extends for a long distance through the region. Pine trees crown it, and, at one place, Pine River has worn an immense hole through the bottom of the sand wall, so that the river flows under a natural rock bridge. There is much basswood in the region, and many honey plants grow on the rocky areas and in the marshy lands by the river, while beyond the river stretch farms with Holstein cattle "in clover."

Mr. Hatch, off and on, all his life, has been a beekeeper. He says he never could get away from the job, because he is interested in bees and likes to work with them. There is just one other thing he likes equally well, and that is the natural beauty

of the Rockbridge locality. That was why, several years ago, after traveling about a good deal, the longing seized him to go back to Rockbridge to pass the rest of his life.

There he is living now, something of a hermit perhaps, but contented in his belief that he has a home in the most beautiful spot he knows, and that that selfsame spot by happy chance is an ideal one for his chosen pursuit,—beekeeping.

He doesn't own his farm—just leases it. There isn't much to the farm as far as size goes, but one doesn't need much, Mr. Hatch says, when all around are fine bee pastures where his bees may roam on the other fellow's land. A piece of land about twenty rods long and fifty to sixty feet wide constitutes the leased property of Mr. Hatch,—room enough for his modest two-roomed house and his bee hives. For the rest, there is the ledge that walls his farm to a height of 100 feet on the west. It is part of the rock formation that is celebrated for its natural bridge, and with its pines, overhanging vines, and profusion of mosses and plants, makes a lovely setting for the group of white-painted hives at its base. A little distance to the east the Pine River meanders by.

A wide shelf of rock projects out several yards from the ledge, some twelve feet above the ground, for the whole length of the apiary. Under this natural roof Mr. Hatch keeps his supers, houses his Ford, and has his work bench, with no expense for farm buildings. A crevasse in the ledge provides a natural refrigerator for his foodstuffs. At another opening in the ledge he has made a bee cellar, by hollowing out of the sand rock a room about 20 by 12 feet and 10 feet high. Two of the sides he has walled up with tile. The temperature of the cave-cellar stays just about 45 degrees the year round. Mr. Hatch says this is known to be an ideal temperature for best wintering of bees. Evidence of the truth of this is the fact that last year every colony came through in fine condition.

The hives in summer time are kept out beyond the overhanging ledge of the rock wall, but near enough to it so that the bees are protected from winds and storms. Indeed, the ledge is almost as valuable to Mr. Hatch's apiary in summer as it is in winter. The cliff keeps off the sun in the heat of the July or August afternoon, and the constant temperature of the rocks is warming in the cool of the morning and cooling in the heat of the day.

To the ledge and its protection, the year round, Mr. Hatch attributes much of the splendid success that he is having with his bees. "They are always healthy. In my six years here I have never had a bit of trouble with foulbrood," he says.

The basswood and clover of the Pine River Valley marshes and farms afford rich pastures for his bees within easy flying range. Goldenrod and Spanish needle grow abundantly near the ledge, and in the fall he finds his bees are very partial to them.

Last summer Mr. Hatch had 110 colonies. The previous season, with about the same number, his apiary brought him for his summer's work \$1,200. Enough, as he says, for his simple habits and the small expense the farm is to him, thanks to his friend, the ledge.

It is only through the summer season that Mr. Hatch lives on his tiny farm. During the winter he is engaged in work elsewhere or takes a journey to some place that lures him.

Perhaps it would be hard to say whether beekeeping is a vocation or avocation with him, but the returns he receives from the business in proportion to time, labor and expense involved, merely because of his choice of location in the wilds, suggest that there are other isolated, rough areas, unsuited to general agriculture, that might turn out to be best for bees, and a source of profit to beekeepers.

Are There Bees in Heaven?

The bee business around Miami, Florida, has gone glimmering. For from seven to ten miles in all directions they have subdivided all the land, made streets and sidewalks and sold hundreds of acres of town lots, leaving nothing for the bees but cocoanuts and Spanish needles. I will keep a few stands if I have to feed them. I have been a beekeeper since November, 1872 and must have a few bees to watch even if they don't make me a cent's worth of honey. If I should be so lucky when I die as to get to heaven and St. Peter should ask me what I want to do, I will say if it is all the same to you, I would like to keep a few stands of bees.

H. M. Cates, Florida.

Comparisons

The man who keeps bees in skeps is no more a beekeeper than a farmer who shoots an occasional rabbit can pretend to be a breeder of Belgian hares or prize Angoras.—J. N. in the *Welsh Beekeeper*, July, 1924).

AMERICAN BEE JOURNAL

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SUMMER IN ENGLAND VERSUS NORTH DAKOTA

The British Bee Journal is responsible for this remark last July: "A Cumberland farmer was asked the other day 'When do you have summer here?' His reply was, 'I am not exactly sure, but I believe it was on a Wednesday last year.'"

I asked a North Dakota lady who was visiting in Illinois: "I understand you have a very short summer in North Dakota?" "Yes," said she, "we have just two seasons, winter and the Fourth of July."

But both in England and in North Dakota, the bees may harvest a lot of honey, during their short crop. The northern states and territories have proved to be much better for bees than was originally believed.

A NEW USE FOR HONEY

Our well-known correspondent, E. M. Cole, of Audubon, Iowa, sends us a label of "Batavia Brand Kidney Beans" put up by Sprague, Warner & Co., of Chicago, and marked, "Prepared with honey and sugar." Why not? This is a new use for honey. Mr. Cole says: "The demand for honey is better than it was last year, and that was a record breaker; in fact there has been a year-round demand for honey."

BIBLIOGRAPHY

"The Mystery of the Hive" is a translation into English of "Le Mystere des Abeilles," by Eugene Evrard, which we mentioned in October, 1921, page 395. It is a very interesting work; in fact it is a delightful description of the bee and its habits. The translation is by a capable Englishman, Bernard Miall. The book is published by Dodd, Mead & Co. We can supply it at the price \$2.50.

The author quotes a number of authorities, among others Langstroth, but the quotations of this author are made from our translation of "The Honeybee" into French, re-translated into English, and it is amusing to see how near good translators can come to the original, without using exactly the same words, yet making an almost identical sense. On the heedlessness of bees, when robbing liquid sweets, Langstroth had written:

"As the fly, was not intended to banquet on blossoms, but on substances in which it might easily be drowned, it cautiously alights on the edge of any vessel containing liquid food and warily helps itself; while the poor bee, plunging in headlong, speedily perishes."

After two translations, into French and back again into English, the same paragraph reads:

"As the fly is not called upon to live on the flowers, but on foodstuffs in which she might easily drown herself, she alights with care on the brink of such vessels as might contain food and partakes of it with prudence, while the poor bee flings herself into it with lowered head, and is soon dead of her folly."

The book is as interestingly written as those of Langstroth and Maeterlink and is truer to facts than that of the latter writer.

ALGERIAN BEEKEEPERS WANT REPRESENTATION AT QUEBEC

The Algerian Beekeepers' Association, unable to send a delegate to the international Convention at Quebec, asked our editor to represent them at Quebec. This was another inducement for him to attend the Quebec meeting.

There will surely be a big attendance of Canadian beekeepers at this international meeting, for Mr. Vailancourt, the man who is organizing the Congress, wrote in the Quebec magazine, addressing the beekeepers: "You will come, for we depend upon you to show what Canadians can do."

THE PETROLEUM CASE HONEY HOUSE

We find the description of this in the "Australasian Beekeeper" for June. The petroleum case is what we call the 2-5 gallon oil case. Mr. A. E. Norton, who describes and shows a photo of his honey house, cuts the top of the tin and pushes it in. Then the tins are filled with earth, and the boxes thus filled used as so many blocks of stone or baked clay. Mr. Norton gives detailed instructions for building the honey house of this material. His house cost him about \$25 and a few days' work. It might do in some of our dry states, but would be a short-lived structure in the Mississippi Valley.

STINGLESS BEES AGAIN

That Washington story of stingless bees, seems to make more noise in foreign countries than in this country. I have already noticed that America is readily given credit for big humbugs. Stingless bees, long-tongue bees, when the word comes from this side of the Ocean, seem to have an echo all over the world. Is it a remnant of the reputation of Barnum? But we must not forget that human beings are credulous and that the big stories have an attraction for all of us. This time the story of the stingless bees is copied into the Victorian Bee Journal for April 13.

THE PRAYING MANTIS

One of our readers (J. W. P.) sends us a full page sensational article, clipped from a newspaper, giving a wonderful description of the "praying mantis," so well advertised in Fabre's writings as a vampire which feeds upon other insects, and stating that a large variety of the "praying mantis" has been imported from China to help destroy our insect pests. It is claimed that this insect, four inches in length, will feed upon all insects and will control such damaging ones, as the boll weevil. J. W. P. asks:

"What will these 'nuts' have to pollinize the fruits and seed crops, if they kill all the bees and insects? This should be stopped before it goes any further."

The "praying mantis" is already in existence in this country and, although of a smaller size than the China mantis, has not spread to any extent. Its voracity is against its success, for that insect eats even its own species. Fabre describes its ravenousness as so excessive that he witnessed a female mantis eating her mate, alive, in the act of fertilization.

The "praying mantis" is easily recognized; I never saw but one, and recognized it at once. It is a very large insect, with a long neck and crosses its front legs, as if praying. Hence the peculiar name given to it. Fabre calls it, in the French language, "mante religieuse." I don't believe we need worry over the possibility of its spreading so as to injure our bees. So, J. W. P. may sleep peacefully while they are trying to spread it to destroy the boll weevil.

THE MICHIGAN MEETING AT TRAVERSE CITY

The editor attended the Michigan meeting and was highly pleased with the thoroughness of the men who spoke at the sessions. Mr. Kelty, the secretary, is an invaluable man, to an association, for he is prompt to grasp

requirements and is active and efficient. A state association should thrive, with such a secretary.

The Chamber of Commerce of Traverse City is wide-awake. They do not lose opportunities of making their locality known. Autos in abundance were provided to take the members on a trip up the peninsula and we saw thousands of acres of good honey-producing crops, sweet clover, alsike, white clover, etc., besides the ever-present milk weed which makes such delicious honey. The editor also had the pleasure of visiting the apiary of Mr. James Hilbert, some 8 miles out on the peninsula. Mr. Hilbert has changed an apiary of over 100 colonies from the Langstroth hive to the Modified Dadant in the past three years. Our readers will remember that we have never advised such a change, owing to the cost involved; but Mr. Hilbert thinks it paid him. He has a way of producing comb honey in Dadant supers and cutting that honey into one pound squares which he packs in honey-proof paper and cartons. Cartons were exhibited to us in which such "chunk honey" had been kept since last fall, apparently as fresh looking as if just packed. We propose to give something of this method in a month or two, if we can secure cuts.

One cannot leave the vicinity of Traverse City without taking notice of the immense quantity of cherries that are produced there. One man has produced and sold as much as 6,000 bushels in one season, of the finest cherries that may be bought.

The trip was delightful and instructive.

HONEY AND AUTO RADIATORS

We expect to give a number of arguments, pro and con, concerning honey in radiators for winter. We consider this a very important question. So our October number will be well supplied with information. Meanwhile, we must say that Secretary R. H. Kelty has made some very interesting experiments on this subject at the Michigan Agricultural College.

Mr. Kelty advises a 3 to 2 solution of honey and water for countries as cold as Michigan, and half and half where the thermometer does not get much below zero. To this solution he advises mixing one to 12 of wood alcohol, or 1 quart for every 3 gallons of the solution. The water should be brought to a boil, previous to slowly adding the honey, and it should be kept boiling till the honey is all dissolved. Then add the alcohol and boil for from 3 to 5 minutes. Then skim the dextrine or gum that forms at the top of the mixture and which would help cause a gumming of the radiator.

Low grades of gum or foreign matter should be avoided. Better use good honey. Wood alcohol is better than denatured alcohol.

The advantage of this mixture is that it is much slower to heat than water and alcohol. Many people have had trouble because of the quick boiling of a water and alcohol mixture. This mixture does not readily evaporate the alcohol, because of the slowness to heat. The water and honey should not be boiled longer than necessary to mix well, because too much water is evaporated and the proportion of honey thereby greatly increased. When any of it evaporates in use, add more water, and do this before the next start, just before starting.

This mixture should be offered for sale at not less than \$1.25 per gallon, with a discount of 25 per cent to garage men.

HONEY SELLING

The editor wishes to call the attention of the reader to the articles written by our staff on "Developing the Local Market" for honey in this number and in previous ones. This matter of honey selling is serious. If honey had its right position in the market, instead of the American public using less than two pounds per capita, annually, when they use 100 pounds of sugar per capita, there would be a demand for at least 25 pounds of honey per head. I say "a demand," for that quantity of honey could not be supplied by the American bee-

keeper, even if he allowed that terrible importation of West Indian honey to come on the American market.

Remember that, as Friend LeSturgeon said, there is no sales resistance to honey. There is nothing sweeter, purer, healthier, better, for the average human being, than HONEY. That is why the mother calls her baby "Honey." That is why the young lover calls his sweetheart "Honey." Read what our people write about honey sales and go and do likewise. Do not get discouraged if some people refuse to buy and, above all things, do not cut the price for the sake of a few more sales. Beekeeping should, pay and will pay, if you handle the honey market right.

Some of you will say: "Oh, it is all well enough, but your men have the name of Dadant to back them in their sales." But don't you know that there was a time when the name of Dadant was not known to honey consumers? Why should not yours become known as well? Keeping everlastingly at it spells success.

THE COST OF WAX

The editor, just now, is in discussions in European bee magazines, although he thinks he has enough to do with A. B. J. But he does not like to have his toes tread upon, so he has to "kick back" occasionally.

On the cost of wax, a writer in *L'Apiculteur*, of Paris, asserts that Huber, Dumas, Milne-Edwards, Cheshire, Langstroth and others are all wrong. He states that a 3-pound swarm, hived by him, produced 3 pounds of beeswax in 3 days, in fact all the combs the hive could hold.

He who tries to prove too much proves nothing. If any kind of swarm could produce its weight or nearly its weight of beeswax in 3 days, beekeepers would work for wax production instead of honey. This man evidently has a special breed of bees and should get rich producing wax. Meanwhile, we will continue to accept the evidence of the past, which goes to prove that beeswax costs the bees an average of about 8 to 10 pounds of honey for each pound of wax, sometimes even more.

U. S. APICULTURIST APPOINTED

We are informed by Dr. Phillips that the gentleman appointed in his place at the Bureau of Entomology, to serve after October 1st, is Mr. James I. Hambleton, a graduate of Ohio State University.

Mr. Hambleton is already quite well known, for he entered the Bureau of Entomology at Washington in 1921 and has conducted some investigations on "the relation of gain in colony weights to changes in temperature, humidity and other factors," which are to be published by the Bureau of Entomology soon.

We bespeak for Mr. Hambleton a welcome in the ranks of beekeepers. Many of us will need his services.

RECOGNITION OF SERVICE

As we go to press word is received of the presentation of an expensive silver set to Dr. E. F. Phillips and to George S. Demuth, by Wisconsin beekeepers, as a token of appreciation of the sixth consecutive visit of the two men to the Wisconsin assembly. The fact that Phillips will retire from government service in October indicates that this will probably be the last visit, for the present, of the two men who have done so much work of this kind together.

On the same occasion Prof. H. F. Wilson, of Madison, was presented a silver vase by the association in appreciation of his work in organization for Wisconsin beekeepers. The presentations were made by Joseph Barr, Kenneth Hawkins and James Gwinn in behalf of the association.

The Wisconsin summer meetings are unique among beekeepers and have come to be the yearly event in that region. The recognition thus given to well-rendered service is especially merited in this case.

DEVELOPING THE LOCAL HONEY MARKET

No. IV.—Selling to the Grocer.

By Geo. R. Watt.

AFTER canvassing the resident district in our honey-selling campaign and receiving bona-fide orders, as outlined in last month's American Bee Journal, we had the much easier task of interesting the grocer. With this in view, we listed all of our orders with each respective grocer, and, armed with these lists, we made a complete store canvass.

Whether we had one order for a 2½-pound can or an order for 200 pounds, you must bear in mind that the grocers were already stocked with jobbing house honey, mostly in 2 to 16-ounce glasses, and also pails of local honey, and all of the grocers were poisoned by the producer having peddled his honey to their customers at the same price as he did to the grocer.

We found that, as a rule, rather than an exception, the average beekeeper will sell honey for whatever price he can get, especially near the end of the day when he is getting weary and has only a few buckets left. It is then that the temptation to cut prices and unload is the greatest.

The Approach

In all of our canvass we had not sold one pound of honey directly, only took orders. When we approached the grocer it was with a different attitude than toward the customer. The grocer is a business man, accustomed to doing business in a business-like manner.

It was now that we first noted the effect of the house to house canvass. On first entering the store, we found the biggest asset that we had was the fact that we were from "Dadant & Sons," and were selling "Dadant's Honey." We then explained how we had made a canvass of their customers and advertised our honey over the entire city. We laid before them the orders that we had for their store. We explained our proposition, that we had an unlimited amount of honey in two grades, clover and fall, and we carried a glass jar of each to show them.

We often made comparisons with other honey that they had in stock, and right here was where we had a chance to make a fine comparison. Last year we had a heavy flow of honeydew, causing all the early honey to be dark and of poor quality. The small producer neglected to separate this from his good honey. In consequence, all of his clover honey was dark and of poor grade. Ours was the finest clover and fall honey.

We then explained that we were going to run ads in the local papers and we would arrange window displays and help him to sell his honey, and take back any stock that he might have left in ninety days.

And right here let me say, we only had to take back stock from one

store out of forty-two that we placed orders with, and that was sold to the next door competitor.

In most cases, when we had explained our proposition, they would double their order, and in this way we doubled our sales, justifying our canvass at once. Others would say, "Oh, you just give me the amount that you think I can sell." We were very careful not to overload them.

As stated by Swanson in last month's American Bee Journal, we left cooking recipes and retail price slips at every house where we called. We also gave a number of these folders to the grocers for their use.

I believe salesmanship, in all cases, lies in being able to read human nature at a glance. If this was necessary with the customer canvass, it was doubly so with the grocer. The big grocer is a man for business, always in a hurry. If he was waiting on a customer when we called, or was at the telephone, we did not bother him but busied ourselves seeing how much honey he had in stock, whose label was on it, and how well it was displayed. Quite often we would take his order while he waited on his customer, or between telephone calls.

In some cases very few words were used, something like this: "How much Dadant honey can you use today?" The answer would come back sharp and right off the bat: "1 case comb, 1 case fives and 1 case two and one-halves." "Thank you, good day." and we were off to the next store on our list.

The small grocer was different. He has built up his business by being friendly, and it was with him we enjoyed telling how fine Dadant's Honey is, of the 500 colonies of bees, how we enjoyed working with them, and how the honey was thoroughly ripened on the hive, brought to the honey house, extracted, and bottled in Dadant's sanitary bottling house, and when we laid our plan before him he usually was ready with a nice order.

Keeping Prices Right

A few would say, "Why should I stock that high-priced honey? I have plenty that I can sell for what I pay for Dadant's honey." Our retort was, "Yes, and your customer can buy it for the same or less than you can."

We made sure this did not occur with us. For example, one man ap-

HONEY, dat's all!



WITH TOAST, OH BOY!

Did you ever try it? Honey on toast? If you haven't, you've got a big treat in store. One young woman said: "I had become tired of eating plain toast, nor did it appeal to the children any more. But once I added honey, my whole family kept me busy serving. Honey is certainly delicious!"

Rich, golden brown toast, spread thinly with honey! Butter and then serve! A delightful breakfast for both children and adults. Serve it often.

The children won't forget and you will enjoy seeing them eat such healthful and nourishing food.

Try it tomorrow morning!

Your Grocer Has Dadant Honey

The grocer's sales were boosted by ads like this appearing twice a week—Tuesdays and Fridays—in the local paper.

proached our truck where we were delivering and wanted to know the price of our honey. We gave him the retail price. He took two buckets. We casually asked him who he traded with. Upon being told, we added two buckets to his grocer's order and dropped in and gave him his per cent of the money we had collected. To show his appreciation he said, "I believe I can use a case of comb honey. I forgot it when you were here yesterday."

We kept ourselves posted as to prices the grocers were charging for our honey, and if any attempted to cut prices we were ready to take out their stock and give them back their money and not let them have any more honey.

We did not patronize the "help yourself and carry stores," on account of the certainty of cutting price and causing trouble. One grocer put on a special sale and sold our honey at a discount, which put him on our black list. We were selling a uniform article and expected a uniform price by all.

We made sure to line up all of the big stores, but some of the small neighborhood stores, too, sold a nice lot of honey. We learned that it was wise to hang on to the best of the small stores and let the rest slide, as they only added to the overhead.

Second Calls

In about 30 days, we made a second call and checked up on the ones that did not give us a double order and noted if their stock was getting low; also rearranged the displays. If they were out of honey, we took orders and delivered at once. If any cans were leaking, we gladly took them out and gave them good ones and very often they would give us orders for the courtesy. If the store was still loaded up, we brushed the dust off the pails, rearranged the displays and placed them in a conspicuous place. We were very liberal with leaflets telling about the good qualities of honey, and its many uses, especially the candy recipes.

I cannot emphasize too strongly that the success of the whole venture lay in seeding the town with the idea of "Dadant's Honey." No other, just Dadant's, so that when folks think of honey they naturally think of Dadant's Honey.

From the Grocer's Point of View

We allowed him 20 per cent discount on the retail price. We did not leave any dead stock on his hands.

We advertised and sold his honey for him.

From Our Point of View

We sold 5695 pounds extracted honey and 33 cases comb honey, on a market already supposed to have taken all the honey it would take.

We found the 2½-pound can the best seller, although it sold at a higher price per pound, with 964 sold.

The 5-pound pail came next with 437 sold.

The 10-pound pail came third with 110 sold, and comb honey last with 33 cases.

The planning and use of shelf and window displays will be discussed in the October Journal.



At this time of presents, piety,
plum pudding and pumpkin pies

Don't forget Dadant's Honey
AT YOUR GROCER'S

Also, each day, an inch ad like this appeared.

Slow Storing From Poor Queens

In a News Letter, issued by the North Dakota Beekeepers' Association, we read: "Colonies that are slow to enter the supers should be marked for requeening." That is good advice. In one of our own yards, this season, with all other conditions favorable for the steady progress of the colonies, and with plenty of super room given early, the bees still remain below and have crowded the brood nest with honey. All of the queens are old and our records show no other reason for this adverse behavior. The best support we can give this yard will be to introduce young, vigorous mothers to each colony. More and more we are learning that Doolittle was right when he said, "The queen is the soul of the colony."



At this time of the
year there is nothing
the children enjoy so
much as

DADANT'S HONEY

We have it in any
quantity. Pails 2½ lbs.,
5 lbs. and 10 lbs. Also
in the comb.

Order a pail today
and enjoy nature's best
sweetening.

IMMEGART

Phone 43 708 Main St.

Established 1861

The Home of Ferndell Pure
Foods

When the grocer got the idea, he would advertise, too, paying for it himself.

SAVING THE MAGAZINES

By W. W. Barnhill.

More than once it has been a matter of remark how closely the beekeeping brotherhood stick together, have so many things in common and are mutually interested in each other. We are prone to invest in new equipment and are anxious to discuss its merits and demerits. If the theory of some tool or plan is good we accept it. If it is found to be impractical we gracefully lay it aside. So the evolution of bee culture has been carried on over a period of many years. All of these things are carefully recorded for us by the editors of our valuable journals and magazines devoted to bee culture. What is the beekeepers' most valuable asset? Is it not those journals which have for their purpose the advancement and betterment of the beekeeper.

Those who were not fortunate enough to be reared among the environments of the bees can well remember when the first attack of "bee-fever" set in, following a severe exposure to some of the fascinating secrets of bee lore. The quest for information which followed will not soon be forgotten: the trip to the public library; the disappointment in case the library was not situated in a large town; the thrills upon receipt of the first bee journal and the fascination of the first bee supply catalog.

Each month we are anxious to get the new issue. In the majority of the cases, we dare say it is carefully read and possibly laid up for a while, but do we file them away to become a permanent part of our library? At the close of each year our editors prepare an index for us which to our mind makes the complete volume of great value.

After considerable search and much correspondence we were able to find a book-binding concern which will bind a journal the size of the American for \$1.25, and one the size of Gleanings for \$1.00. Can we allow the rich information which our journals contain to get away from us at this price? When the volumes are bound with index, one has practically every subject at hand and can get the varied opinion of scientific and practical beekeepers the world over. In addition to having the journals bound, the writer has collected all available agricultural publications pertaining to apiculture, indexed them, and had them bound in book form.

This thought is not presented as anything new, but we are confident that it will prove a source of pleasure and profit to all who may see fit to preserve their journals in book form. Ohio.

What's the Matter, Delaware?

According to the American Honey Producers' League Bulletin, there is some form of disease law or official voluntary attempts at disease control in all states except Delaware. Also that is now the only state without a single member in the League. Are there any beekeepers in Delaware?



SEALED AND UNSEALED BROOD

By J. H. Merrill, Kansas Agricultural Experiment Station.

(Contribution No. 337 from the Entomological laboratory, Kansas State Agricultural College. This paper embodies some of the results obtained in the prosecution of project No. 126 of the Agricultural Experiment Station).

SYSTEMATIC observations on brood rearing were begun at the Kansas State Experiment Station during the summer of 1922 and were continued throughout the season of 1923.

Several hives were so arranged that a portion of each sufficiently large to contain three brood frames in which the queen was allowed to deposit eggs were enclosed with wood and wire queen excluders on the sides, tops and bottoms. These frames in which the queens had deposited eggs were removed from this "cage," the number of eggs in each frame was determined after which it was returned to the hive and placed outside of the cage. Since each queen was at all times kept within a cage, no more eggs could be added after the frames were removed. Each frame was examined again in ten days after all of the larvæ were sealed, and the amount of sealed brood which had developed from the eggs, whose number had been previously determined, was recorded. There was found to be a marked discrepancy between the number of eggs deposited and the amount of sealed brood which result-

ed therefrom. This condition was noticed throughout the season of 1922.

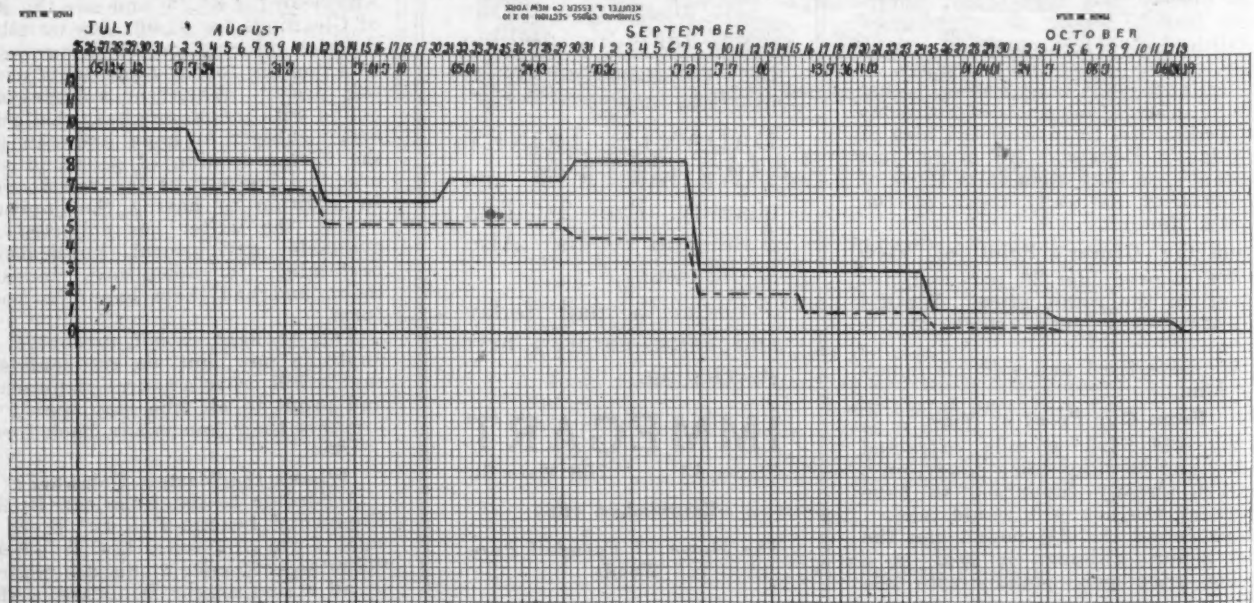
Whether or not this difference was due to the fact that the queens were kept confined to a three-frame cage and were thus living under unnatural conditions, was a question that needed answering. To get more light on this subject it was decided, during the season of 1923, to make observations in colonies where the queens had access to all parts of the hive. The same tendency was again apparent and is represented graphically in the accompanying figure. In this figure the number of eggs and unsealed larvæ are represented by the solid line at the top, while the amount of sealed brood resulting from these eggs is represented by the dotted line below.

A study of this figure will show that the amounts of variation between the sealed and unsealed brood are not constant. If the periods from August 2 to August 20, September 7 to September 16 and September 25 to October 3 are considered to be normal variations it will be seen that the discrepancy ranges from about one hundred to two hundred. Miss Annie D. Betts has an article in the January number of the British Bee World relative to the non-hatching of a portion of the eggs deposited by the queen. Her article

explains why we find a smaller amount of sealed brood than we do of eggs. The question which is vitally important is, why do we have much larger variance at times, such as those occurring the last week in July, last ten days and first week of September and from the 16th to the 23rd of September?

Perhaps a study of the amount of precipitation will help clear up the matter. The brood counts recorded in this graph were made every nine days and are here represented as a straight line, although as a matter of fact it is probable that during each nine days here represented the amount of eggs deposited was higher on some days and lower on others. During each of the nine-day periods in which there is a wide variation there was a considerable amount of precipitation extending over a period of several days in each case. The bees were quite naturally confined to their hives more during these periods than they normally were. There must have been some connection between the presence of an increased number of bees in the hive and the daily rate of egg laying, for it will be seen that the queen maintains a higher average at these times. The question that cannot be answered is, why does not this increased number of eggs result in an increased amount of sealed brood? During the first week in September there was a slight honey flow on and it is possible that the bees neglected the brood for the purpose of bringing in nectar. This in a way explains what happened in other cases because after each period of confinement the weather was such as to encourage the bees to leave their hives in search of nectar. It seems to be another instance of the fact that bees do but one thing at a time well. After October 3 none of the eggs or unsealed brood in the hive ever developed into sealed brood.

From the above mentioned obser-



Graph showing the difference between the amount of sealed and unsealed brood. Unsealed brood represented by the solid line, sealed brood by the dotted line.

vations it would seem to be a very unsafe practice to judge the number of eggs deposited daily by the amount of sealed brood which is found in the hive. However, since only the brood which is sealed emerges as adult bees, it will be satisfactory, therefore, to gauge the value of the queen by the amount of sealed brood. In fact, such a method for determining her value would be more exact than if eggs or unsealed brood alone were considered. While in all of the colonies a variation occurred between the number of eggs deposited and the amount of sealed brood, yet this was more noticeable in some colonies than in others. While the variations which are figured on the accompanying graphs would probably vary in amounts under different conditions and with different queens, yet the general trend should hold true, since this tendency has been observed to occur throughout two seasons and in sev-

eral different colonies. It is also shown that conditions must not only be favorable for egg production but they must also be favorable for brood development, if there is to be an increase in the rate of brood rearing. Each queen was consistent in the amount of variation between the number of eggs deposited and the amount of brood which was reared from her throughout the entire season.

Since the rate of egg laying fluctuates more than the rate of brood rearing it seems reasonable to suppose that a limited number of workers can care for and develop but a limited amount of brood at any one time. This would give us cause to believe that with other things, such as egg laying, being equal or normal, that the amount of brood which is developed in a colony depends upon the number of workers which are available at that time for the work of brood rearing.

THE MIGRATION OF PLANTS

By J. E. Crane.

I AM not a botanist, but have always been interested in plants, flowers and trees, and more so since I began to keep bees, and especially since starting outyards.

Traveling often over the same roads gave me an opportunity to watch how new plants spread over the meadows, pastures, and along the roadsides. Having many times been wrongfully accused of sowing the seed of honey plants led me to notice more carefully how plants travel from one place to another. I found the subject decidedly interesting, and have found myself many times asking the question "Do plants think?" or "Can plants reason?" so ingenious are the ways plants take to scatter their seed over the earth and establish themselves where there were none before. Take the burdock, for instance. With what skill and cunning it covers its seed with a burr that will stick to a horse, cow, sheep, dog or cat, or your best suit of clothes, that it may get a free ride to some new soil in which it may grow!

How does the wild cherry know that to get its seed transported safely by the birds it must first cover its germ by an indigestible woody shell and then cover this with a pulp and bright colored skin to make it attractive to the birds?

Has the thistle or dandelion studied physics and learned that light, hairy palpus will help to bear up their tiny seed in the air in their quest for a new home? The basswood gives each cluster of seed two wings, which bravely leaves the mother tree and goes twirling through the air when autumn comes, to found new homes in fresh soil. Surely plants can think or reason or some one has done some tall thinking for them. During the summer of 1922 I moved a pile of coal ashes at the lower end of my home yard of bees. The past season I counted fifteen or more species of plants

growing there. How did the seed get there? Some doubtless came by the air route, other seed was washed down from higher ground, while the birds played their part.

Nature has many ways of sowing seed that the earth may be clothed with beauty and fruitfulness.

Little did I think as I played with dandelions in my childhood that they would spread and prevail until they would turn the meadows and pastures into gold that almost rivals the sunset sky and furnish our bees with tons of honey.

Fruit-bearing trees and shrubs have covered their seed with food for man, birds and beasts, that this seed might be scattered and we find apple trees growing in pastures, and in forests beside beeches and basswoods.

The botanical name of white clover is *Trifolium repens*, which simply means three-leaved creeper, and creep it does, and throws down roots as it creeps to hold all the ground it covers while it sends up clusters of flowers as it goes and produces seed to cover the ground.

Alsike clover has come to us from far away Sweden in the past sixty years. At first we rarely found it, but now it is common along the roadsides and in almost every meadow.

Sweet clover is an immigrant from the Far East, at first cultivated, doubtless, in gardens for its handsome spike of flowers and fragrant leaves. It has left the gardens and, persecuted by farmers who thought it a weed, has taken to the roadsides and waste places where it gives us more or less honey each year.

Thyme and its cousin, the wild marjoram, have been brought from the south of Europe and finding a congenial climate and soil to their liking have spread until in some places they have become of considerable importance in the production of choice honey. In a recent number

of the Dixie Beekeeper, Mr. Wilder tell us of a new plant that is spreading over some parts of Florida. He calls it the "wonder honey plant." He says it has spread over parts of Lafayette County, Florida, during the past six years, to such an extent that average surplus from this plant has been 200 pounds of comb honey per colony. We shall watch its spread over the state with great interest.

Not all plants that spread rapidly are good honey plants, by any means. It is true that the blue weed, or blue thistle or Viper's bugloss, as sometimes called, furnishes some honey; yet it is a most detestable weed.

I do not remember having seen chickory before I was 30 years old, but today we see it very common, along roadsides, in meadows and grain fields, a very persistent weed. If you cut it off below the crown, or even pull it up by its roots, it is likely to send up several new plants from pieces of root left in the soil.

Another vicious weed that is spreading over our northland quite too fast is the hawkweed, or "Devil's paint brush," as it is sometimes called, which better describes it, for it not only spreads freely from seed but from underground stems which it uses until some of our fields are almost completely covered with it.

But time would fail me to tell of all the curious ways plants have of spreading over the land. Suffice it to say it is a subject that may well attract the attention of every one engaged in any rural pursuit.

Vermont.

Carrying Capacity of Sweet Clover

Naturally the carrying capacity of sweet clover, as is the case in the yield of any crop, will be determined largely by the stand, the fertility of the soil and climatic conditions. Where the sweet clover is seeded early and a good stand obtained and conditions favorable for growth, the crop will probably produce pasturage any time after the middle of June, and under average conditions it is safe to count on two mature cows per acre. If conditions are less favorable or the stand not satisfactory the carrying capacity will be lessened. At the Nebraska Experiment Station, on a rather rich loam, sweet clover seeded March 22 in 1922 was ready to pasture early in June. The season up to that time had been favorable and the stand was excellent. This carried an average of three cows per acre.

In 1923 the sweet clover was seeded the first of April and was ready for pasture shortly after the middle of June, and it had practically the same carrying capacity as the year before.

The reports from various parts of the state show the carrying capacity for sweet clover the latter part of the first season anywhere from around one mature animal per acre up to as high as four. It is probably safe to consider two as an average for your section.—(From Nebraska Farmer, May 17, 1924).

BEES AND HORTICULTURE

By F. B. Paddock.



A well appointed apiary belonging to S. W. Snyder, of Center Point, Iowa.

BEEKEEPING and horticulture have been closely associated for a good many years. So it is not surprising that we should find some of the leading horticulturists of Iowa, also prominent beekeepers.

Four miles from Edgewood is the Bonnie View Fruit Farm with C. H. True as proprietor. Mr. True has been closely associated with the Iowa State Horticultural Society for many years and the fruit farm which he has developed has been the meeting place of the Northeastern Horticultural Society many times. As a lover of fruits, Mr. True has developed a good many varieties of apples, grapes and berries. It is interesting to follow through the orchard and learn of the different varieties; Sometimes there are as many as four varieties on one tree. Strawberries, raspberries, and even blueberries are grown extensively.

Early in his work with fruit Mr. True appreciated the value of the bee as a pollenizing agent. He became interested in bees, subscribed for the magazines and purchased books. He has become as much of an authority on bees as he is on horticulture. Sixteen years ago, Mr. True had 115 colonies of bees in one yard, located on the south slope of a hill. At that time he built a modern honey house and bee cellar. Failing health caused Mr. True to feel that the bees were a burden and, five years ago, he sold his entire outfit.

It was at once evident that the lack of bees was a loss to the fruit, and now Mr. True is making another start with the bees in order to be more successful with his fruit. As Mr. True became interested in bees again, they also interested his daughter, who is now an active partner with her father in making a second start with honey production. The start this time has been made with package bees and although the season has been adverse, the results obtained from these bees has been highly satisfactory.

Formerly Mr. True kept his bees in eight-frame hives, but this start has been made in ten-frame equipment. The flora in this community is fundamentally white clover, although

there are some restricted areas of basswood. Some fields of alsike clover yield abundantly in this community. Most every fall there is enough buckwheat planted to yield a considerable honey crop. White clover is dependable as a honey crop. Basswood yields two or three years out of five, with no regularity.

Mr. True has not reached the stage of marketing on his second start with bees. Formerly, however, he produced more than 6,000 pounds per year. At that time he developed a very good trade which took all of his honey at his door. Extracted honey was produced almost entirely, as the honey flow did not seem to be adapted to comb honey production. The honey was sold mostly in ten-pound pails, and when Mr. True was forced to discontinue beekeeping his trade had developed to the extent that he could not supply it with his own honey. Mr. True is very positive in his assertion that his community will consume much more honey than is produced there. He contends that the chief difficulty in marketing honey is the lack of uni-

formity and the lack of co-operation. Bonnie View Fruit Farm Honey gained a reputation over a large territory.

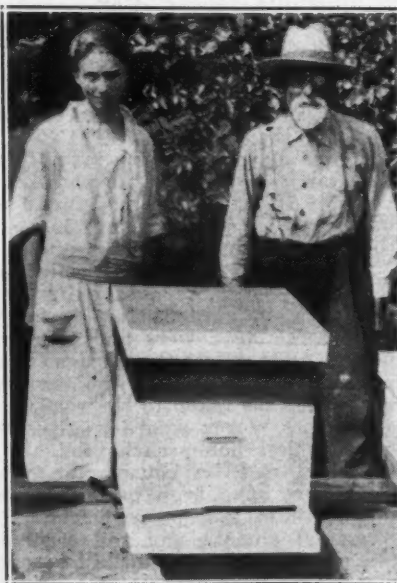
Mr. True is a thorough believer in the best possible stock and hopes to be able to develop a strain of high-producing bees. The territory is good and the trade is at hand. Mr. True stated that if he were a younger man he would not hesitate to operate several hundred colonies there and he would not fear for the sale of the honey.

Formerly Mr. True was a regular exhibitor at the Iowa State Fair, where he took many premiums on honey and wax. He is a great believer in the value of fair exhibits as advertising. Today he is an exhibitor in the Horticultural Department and hopes again to exhibit in the Honey Department. It is indeed an inspiration to visit Mr. True and to see the work which he has accomplished and to know the faith that he has in the fundamentals of the industry.

In connection with horticultural interests, S. W. Snyder, of Center Point, keeps 100 colonies of bees. Mr. Snyder has been instrumental in the development of the Horticultural Society of Iowa and today is one of the society's directors, as is also Mr. True. Mr. Snyder has been greatly interested in the development of the Beekeepers' Association. At one time he served as its Secretary and was one of the charter members of the present incorporated organization.

Mr. Snyder has been associated with bees all his life. As a child his spare time was spent opening hives in his great grandfather's apiary. Mr. Snyder eats honey three times a day and claims that it is one of the most valuable aids to health. His yard is one of the best kept of the state. Anyone who visits his apiary is impressed with the exactness of his operations and the quality of the product.

Mr. Snyder feels that the larger hives have their place, but in his community they have not proved as satisfactory under his management as the smaller hives. He feels that



C. H. True and his daughter, Edgewood, Ia.

his best results come from the eight-frame hive. Needless to say, Mr. Snyder is a strong believer in the best type of queen and is constantly searching for better queens. He has no difficulty with swarming, for all of his colonies are headed by young queens and he aims to give plenty of room and eliminate drones as far as possible.

White clover is not quite dependable in his territory and sweet clover is coming in rapidly. Alsike clover is perhaps the best honey plant in the vicinity. Within flying range of his yard there is usually a hundred acres of alsike each year and the bees get a very large amount of nectar from this plant.

His yearly production averages about 10,000 pounds. Both section and extracted honey are produced, but Mr. Snyder now sells ten pounds of extracted to one pound of section honey. He sells the most of his honey at his door. A few years ago he advertised, and effects of the advertising are still apparent. He ships honey to customers all over the United States and Mexico and these customers buy from him year after year. Mr. Snyder says this is the result of maintaining a quality product. It is unusual to find a beekeeper who has no difficulty in disposing of his honey in the midst of a territory where others are continually making the contention that they cannot market their honey.

Mr. Snyder has made a practice of giving each customer a booklet on honey, such as has been put out in recent years by the bee supply companies. Since a booklet has been issued by the American Honey Producers' League, he has used it in preference to other booklets. For local trade Mr. Snyder finds the ten-pound pail by far the most popular container. He has no call for honey in combs. His out-of-state customers invariably take 60-pound cans of honey.

Mr. Snyder winters in a cellar under his honey house, with no loss. So successful has he been in cellar wintering that he has been called upon to give the plans of his cellar, which he gladly furnished, for he is interested in the successful development of the beekeeping industry.

Mr. Snyder is an authority on nuts, and through his earnest endeavors there has been built up at the State Fair a wonderful exhibit of this product. At the Mid-west exhibit he is superintendent of the division of nuts and entries were received from many states in the Union. Such men as Mr. Snyder have utmost confidence in the future of the beekeeping industry, for they do not fear over-production and the consequent marketing problem.

T. W. Blackman of Nevada, Iowa, is an extensive truck and market gardener and his products are known over a large territory adjacent to Nevada. He began his garden operations in 1878. As a child he was



Mr. Blackman, Nevada, Iowa.

interested in bees and was fond of honey. The desire to keep bees, especially in connection with his market garden work, was fulfilled in 1888, when he started with two colonies of bees. From this start his apiary increased in size until he had 80 colonies in his apiary. He has maintained this number for a good many years, as he feels that a larger number of colonies in one location in his territory is not desirable.

In the beginning, Mr. Blackman bought home-made hives, but these were discarded years ago for the commercial ten-frame dovetailed hives. Mr. Blackman has been a consistent advocate of modern standard equipment. Soon after making the



Entrance to Blackman's bee cellar.

start with bees, Mr. Blackman purchased pure bred Italian queens. With the other work of his garden, Mr. Blackman did not feel that it was desirable for him to attempt to raise his own queens, so he relied upon purchased queens. The territory is not adapted to queen rearing on account of the large number of black bees which are kept by other beekeepers and which are found in the trees along the streams.

In Mr. Blackman's territory, white clover has been on the decline for the last ten years. Fortunately, however, the biennial white sweet clover is replacing the white clover as a honey plant. The amount of basswood is decreasing in his territory. Mr. Blackman is quite impressed with the condition which has brought about the changed nectar secretion. White clover has decreased so that it is entirely undependable. Heartsease and other fall plants did yield honey ten and fifteen years ago, but since that time the honey secured from these plants has gradually decreased until now the bees seldom get anything from such plants.

Mr. Blackman produces both section and extracted honey in about equal amounts. The strongest colonies in the yard are always selected for the production of section honey. A few years ago when the yields were better in his territory, he secured 336 finished sections from one ten-frame colony.

Mr. Blackman markets his honey through the grocery stores, in connection with his garden truck. He has never had any difficulty in disposing of all of his crop, even months ahead of the new crop. Considerable honey is sold at the house to customers who come there to buy vegetables. The section honey is carefully graded and sold according to grade. In general the customers prefer the better grades and the poorer grades are usually bought after the top grade is gone. The extracted honey is sold mostly in five-pound pails.

Mr. Blackman winters in a cellar which is built in a hillside adjacent to the apiary. The cellar is 10x14 feet, with a 7-foot ceiling. Three sides of the cellar are in the hill and the fourth side is a double entrance. The ventilation is accomplished by an intake 50 feet long and by two roof ventilators. Above the ceiling is one foot of sawdust and on top of this is a small storage structure for vegetables. For a good many years Mr. Blackman has been able to winter in this cellar with practically no loss.

According to Mr. Blackman the operation of 80 colonies of bees, fits in with market garden work very nicely. He feels that it is a very valuable adjunct in several ways. Mr. Blackman entertains a good many student classes for both the garden and the bees, and is often a co-operator in garden experiments.

Iowa.



THE SEAT OF THE SENSE OF SMELL IN THE HONEYBEE.

Part I

By John H. Lovell.

IT has been conclusively shown in the series of papers on the odors of flowers and their relation to insects that honeybees possess a well-developed sense of smell. This may be easily proven by repeating the experiments devised by K. v. Frisch, and described in the American Bee Journal for October, 1923. I never heard of a beekeeper denying that bees have a keen olfactory sense, and most biologists admit it, although Bethe thinks they do not possess this sense. It plays a very important part in the life of the bee both in the field and in the hive. In the field the odor of a flower serves as an allurement to attract the attention of scout bees, and as a guide to the other inmates of the hive in their search for the newly discovered sources of nectar and pollen. Within the hive, colony odor controls to a great extent the behavior of its members. It is the unifying bond, which enables a bee to distinguish its own hive and its fellow inmates and to recognize stranger bees. It is a mixture of all the odors of the hive, as those of the queen, brood, pollen, nectar, wax, and others; but the queen odor is apparently often the dominant factor.

An abnormal colony odor may be produced by disease or other unusual odors. When bees are gathering nectar, which has so strong a scent that it can be perceived at a long distance from the apiary, the different colonies have a nearly similar odor; and a loaded bee returning from the field may enter any hive with little danger of molestation. The reactions to colony odor are many and varied, and are considered more at length in "Are Bees Reflex Machines," by H. v. Buttel-Repen, translated by Mary H. Geisler (The A. I. Root Co.).

As to the location of the sense of smell in insects there has been a great difference of opinion. It is surprising to note how superficial and inadequate have been many of the experiments and the readiness with which definite conclusions have been drawn from very slight data. Frequently strong alkalies or acids have been used, as carbolic and acetic acids, ammonia and strong essential oils which are corrosive in their action. Many of these stimulating substances are irritants for mucous surfaces generally, and can without reference to smell call forth vigorous responses. True olfaction acts only on the nerves of smell, but these corrosive substances act on other nerve endings. The eyes and the articulations of the

body generally are very sensitive to them. Forel, in the "Senses of Insects" and McIndoo in Proc. Acad. Nat. Science, Philadelphia, Vol. 66, give many of the different views which have been advanced by European authors. The seat of the sense of smell has been variously referred to the mouth cavity, oesophagus, the epipharynx, palpi, mandibles, a plate below the antennae, a fold of skin between the antennae, the spiracles, organs near the spiracles, stigmata, and Hicks' pores; but most investigators have been convinced that this sense resides in the antennae. As it has now been definitely proven by Forel and Wheeler in the case of ants and by v. Frisch in the case of the honeybee that this sense is found on the antennae, the above opinions are only of passing interest. But the theory that Hicks' pores are olfactory organs, which has recently been revived by McIndoo, has been given so wide a currency that it deserves brief mention.

In 1857, Hicks discovered on the wing-bases of flies, and later on honeybees, wasps, moths, or in all in about two dozen genera of insects, belonging to many orders, small pores, which he suggested might be organs of smell. They were subsequently mentioned and studied to some extent by Leydig, Weinland, Kraepelin, Rohler, DeGENER, Vogel and others, although they were not considered by them as organs of smell. More recently McIndoo has examined Hicks' pores anew, and described in detail their structure and distribution in bees, ants, wasps, butterflies, moths and beetles. In these pores he believes resides the olfactory sense. Drones have on an average about 3,000 olfactory pores, workers about 2,800, and queens about 2,200. Two-thirds of them are on the bases of the wings, 600 on the legs, 100 on the sting, and about 300 on the mandibles. A small number occur on different parts of the mouth, and 6 or 8 at the extreme base of each antennae. (For figures see American Bee Journal, June, 1914).

A pore consists of a minute slit or round hole in the chitinous covering of the bee, beneath which is a spindle-shaped nucleated sense cell. From its outer end a fibre runs to the external opening in the chitine, and from its inner end another nerve fibre connects with a main nerve. Its structure is thus very simple (See figures in A. B. J., June, 1914). According to McIndoo, the naked protoplasm

"comes in direct contact with the external air." This is certainly an histological error, and is most improbable, not to say impossible. In flies, according to Bolles Lee (Rec. Zool. Suisse, Vol. 2, 1885), the pore is closed by a granular pad, which receives the nerve fibre. All authorities agree that nerve terminations are protected, at least, by a thin membrane.

McIndoo's method of experimenting was as follows: Bees were confined in triangular cages, the sides of which were of wood, the tops of glass and the bottoms of cheesecloth. As odors chemically pure, essential oils of peppermint, thyme and wintergreen were chiefly used, although leaves of pennyroyal and spearmint, honey, pollen, etc., were also employed. An open vial containing the odor was held half an inch beneath the bees tested. In the first series of experiments only uninjured or normal bees were used. On an average 85 per cent of the bees moved away from the strong essential oils; 75 per cent from the leaves of pennyroyal and spearmint; 29 per cent from pollen, and 6 per cent from honey. To all the odors, except those of honey, pollen, honeysuckle and bee stings, the bees reacted negatively. For the odors of honey, pollen and honeysuckle the most characteristic response was the vigorous vibration of the antennae.

In another series of experiments all four wings were cut off, or pulled off, or the bees were mutilated in some way. As two-thirds of the pores are on the wings, it was assumed that the sense of smell would be weakened; but as there were more than 900 pores remaining on a worker bee on the legs, sting, mandibles, etc., it would seem as though the bee should still possess a good olfactory sense, if this sense is located in these organs. When tested with strong essential oils of peppermint, thyme and wintergreen they responded in the same manner as uninjured bees, but a little more slowly. In the case of the bees with the wings cut off, the difference in the reaction time was only 0.4 of a second slower than the general average of unimpaired bees with the same odors. The odor was held under each bee for 60 seconds. In the experiment in which the wings were pulled off, the bees often failed to respond at all to the strong essential oils. The average reaction time was increased 8 times in the case of the bees which did respond to the odors.

In the last experiment a drop of yellowish blood appeared where the wing was detached. (The Olfactory Sense of the Honey Bee, p. 334).

Many other experiments were performed, but they need not be described here, since McIndoo's method of experimenting has been sufficiently illustrated. In all 509 specimens of bees were carefully observed, but on account of the extreme restlessness of many of them it was possible to obtain records for only 263. Where the conditions were only such that more than half the bees could not be tested on account of restlessness, the records of many others are probably of doubtful reliability, since they must have also been more or less disturbed by their environment. A method of experimenting is very desirable in which the bees are not confined in cages. "Tests of the olfactory sense," says Snodgrass, "should undoubtedly be made under natural conditions."

Chemically pure essential oils of peppermint, thyme and wintergreen were chiefly used, and in some experiments were alone employed. It is noteworthy that the bees were invariably repelled, and moved away from these strong oils. At four different times while worker bees were being tested with oil of peppermint they became excited, and produced an uproar by rapidly vibrating their wings. A similar effect was produced when a very small amount of tobacco smoke was permitted to enter a cage. In another experiment it is stated that "all the other bees soon fled from the oil of peppermint." If we are content, says Forel, to bring close to an animal certain substances and notice whether it avoids them or not, we have not demonstrated olfaction at all. We have simply shown that the substances have irritated the animal. Many chemical substances irritate nerve terminals other than those of olfaction.

The manner of the responses was often far from satisfactory. In the experiments with beetles the movement of a leg, an antenna, or even the mouth parts, was considered a response. Bees with the antennae removed or covered with celloidin, although in possession of all of Hicks' pores, entirely failed to respond to the essential oils. McIndoo attributes this failure to respond, not to the absence of the sense organ on the antennae, but to a general injury or shock received by the insects, but this cannot be regarded as proven. It will be shown in Part II that bees trained to a color visited it in the same way after their antennae had been cut off as before, which shows that they had received no general injury.

"The response or manifestation of excitement by bees a few seconds earlier or later," remarks K. v. Frisch, "cannot be regarded as a sufficiently reliable criterion by which an estimate can be made as to the injury the olfactory sense has received." The beginning point of the reaction-time is likely to vary more or less according to incidental conditions, as the

age and vigor of the bee, the manner of mutilation, and the intensity of the odor vapor. When the vial containing the odorous substance is placed half an inch below the insect, from which it is separated by a porous screen of cloth or wire, and is used repeatedly, it is unlikely that in every instance the vapor would have the same strength and come in contact with the insect in exactly the same time.

McIndoo frequently finds a relation between the number of pores and the reaction-time. "If the reaction-time of each caste of honeybee is compared with the total number of olfactory pores, a consistent relation is obtained. A drone has 2,600 pores and responds in 2.9 seconds; a worker possesses 2,200 pores and responds in 3.4 seconds; and a queen has 1,800 pores and responds in 4.9 seconds." (The number of pores on each caste of bees is given as somewhat larger in McIndoo's later papers, probably due to a more careful count.) On the above statement Clements and Long comment as follows in "Experimental Evolution," p. 231: "This, however, is only a qualitative relation, since the worker with 400 pores less than the drone requires but 0.5 second longer, while the queen with 800 pores less takes 2 seconds longer. The absence of a definite quantitative relation is further shown by the fact that removing the wings of workers with 1,510 pores increased the reaction-time 8 times, while coating 658 pores on the legs increased it but 2.5 times."

In the case of beetles the attempt to distinguish between the reaction-time of normal and mutilated insects not infrequently failed entirely. Four species of beetles responded more slowly before than after their antennae were pulled off. Five other species showed no difference in the reaction-time before and after mutilation. Other mutilated beetles were quite inactive.

The experiments of McIndoo were not well adapted for the purpose intended, and no satisfactory conclusions can be drawn from them as to the seat of the olfactory organs of insects. It is not advisable to repeat them, since a better method of experimentation is required. In the writer's opinion Hicks' pores serve to perceive differences of humidity and temperature; and in general to render important organs more sensitive to external conditions and thus prevent mechanical lesions. Such organs of touch are very valuable to insects encased in an external skeleton of chitine. Their distribution on the wing-bases, legs, sting, mandibles, etc. can thus be readily explained, whereas, olfactory organs such a distribution would be disadvantageous and inexplicable. As pointed out by Clements, a part of the pores are as far away as possible from the central ganglion, and several times as far as others. As the sense of smell is highly developed, a highly centralized organ would be expected, as in the case of vision. So far as I am

informed, a nearly similar view is held today by most entomologists. In view of the definite proof offered by v. Frisch that the organs of smell are on the antennae, it is not necessary to dwell longer on the work of McIndoo.

It is not infrequently stated, on the authority of Graber, that the sense of smell in the Orthoptera (crickets, roaches, etc.) is found on the cerci. But Forel regards this as only another instance of general tactile sensation due to strong chemical actions on delicate nerve endings. I understand that Graber himself later ascribed the sensitiveness of these organs to strong odors to the sense of feel and not to that of smell. There is no satisfactory evidence that organs of smell are found on any other parts of insects than on the antennae or feelers.

The reader will find an excellent historical discussion of the senses of insects and their relation to flowers in *Experimental Pollination*, Clements and Long, Carnegie Inst., 1923.

REFERENCES

- McIndoo, N. E. The Olfactory Sense of the Honeybee, *Jour. Exp. Zool.* 16:265-346, 1914. The Olfactory Sense of Hymenoptera. *Proc. Acad. Nat. Sci., Phil.* 66:294-341, 1914. The Olfactory Sense of Insects. *Smith. Misc. Coll.* 63:1-63, 1914. The Olfactory Sense of Coleoptera. *Biol. Bull.* 28:407-460, 1915. The Sense Organs on the Mouth-parts of the Honeybee. *Smith. Misc. Coll.* 65:1-55, 1916. Recognition Among Insects. *Smith. Misc. Coll.* 68:1-78, 1917. The Olfactory Organs of Lepidoptera. *Jour. Morphology* 20:33-54, 1917. The Senses of Insects. *Annual Rep. Smith. Inst.*, 1920, 461-483. Sense of Smell of the Honeybee. *Amer. Bee Jour.*, 54:197-200, 1914. The Senses of the Honeybee. *Amer. Bee Jour.*, 56:195-196 and 282-284, 1916. Sense Organs of the Honeybee. *A B C & X Y Z of Bee Culture*, 1917:636-645. (Omitted from subsequent editions.)

Good Advice

Illinois has a lively association which issues a *Monthly Bulletin*, sent free to all members. Here is what the *Bulletin* says for August, and it is still pretty good advice for September:

"Better get the colonies in the very best possible shape to go through next winter by making sure that they have queens able to stand a vigorous egg-laying period in 1925. No predictions ahead, if you please, but these rains have not been a bad thing on the clovers. Our experience is that a wet summer is generally apt to mean considerable clover the following year."

"A poor queen is a bad investment at any time. Better make sure of the doubtful colony by getting a young, well-raised queen. But whatever you do, do it quickly."

Demonstration Apiaries Perform

J. E. Ver Ploeg, at Pella, Iowa, had 10 colonies of bees which yielded him a total of only 375 pounds of honey in 1922. Through his county agent he co-operated with the Extension Apiarist of the Iowa Agricultural College at Ames, in 1923, and five of his hives were put under the direction of the specialist. These colonies were transferred to better hives and so managed that they produced 525 pounds of honey. The other five hives that were handled as usual made 275 pounds of honey. Mr. Ver Ploeg is a booster for this kind of service. So are we all.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

GRANULATED HONEY

1. To keep honey from granulating, is it a good way to put the containers, 5-gallon tin cans, in boiling water? How long must it boil?

2. While boiling, must the 5-gallon can be air tight, or must I remove screw cap on top?

3. How tell a queen has mated with an Italian drone, not with a hybrid?

Answers.—1. Putting a can of honey in boiling water and keeping it there a while would very probably spoil the honey, as far as the essential oils which give it the flavor are concerned, because they are very easily evaporated, and it makes the honey taste more like syrup than honey. It is recognized that, keeping honey in water not much over 160 degrees F. for a while will evaporate it sufficiently to keep it from granulating for a long time. The degree of cold to which it is exposed will have something to do with its quicker or slower granulation, after that. Usually it does not granulate for a long time.

2. The can in which it is contained must be open, because there is more or less expansion and the can might burst. If the honey is already granulated, it is best to remove it as soon as well liquefied and cool it promptly.

3. It is impossible to tell what kind of a drone a queen has mated with, until you see her progeny. The "golden Italians" are so persistent in holding their color that a slight mixture is sometimes very hard to detect by the color of the bees. But pure bees are always quiet on the combs and do not run about as the hybrids or blacks do, unless they are mismanaged and smoked to excess.

SAINFON AS BEE FORAGE

I have read with interest Mr. Alois Alfonsus' article on Bee Forage, page 342, July number, and especially note he expects to try to raise sainfoin. I also have read your foot note wondering why it has not been tried in America. It has been tried and failed, at many experiment stations, but that proves nothing. Serradella (*Ornithopus sativus*) was also tried at many experiment stations, and failed, but I raised a perfect crop the first time I tried, although it is really a cold climate plant. I am raising many legumes, indeed nearly all that are known as useful, and some that are unknown. I have no doubt I can raise sainfoin if I can get inoculated soil, or rather a little soil from a field in Europe where it has been growing. How to do this I don't know, but possibly if you could put me in touch with Mr. Alfonsus we can together work out the problem, for it is a problem, and there are many factors besides inoculation and seed that must be known to insure success.

FLORIDA.

Answer.—Your suggestion is very good, indeed. It would be a great gain, if the sainfoin could be introduced so as to become of permanent benefit in this country. The name "sain foin" means "healthy hay" and it is one of the best legumes of Europe.

The address of Mr. Alfonsus is 353 Delaware Ave., Milwaukee, Wisconsin. I have no doubt he will co-operate with you in this matter. Getting soil from a good sainfoin field should be an easy matter. Besides, you are in the proper location to try it, as it

might not stand some of the winters of our northern states. Better try it in the South first.

Sainfoin is called scientifically "Onobrychis sativa," and Bonnier writes that this name is composed of two Greek words, "onos" (ass), and "brychein" (to bray), meaning that the asses bray for it. He states that there are some 80 species of sainfoin, all good for hay. According to this author, the serradella is rarely cultivated for hay, except in very moist localities.

PROPOLIS IN SUPERS

I am producing chunk honey, using the shallow extracting frames. This year the bees have been storing pollen in the supers. Is there any way that this can be taken out? What causes the bees to do this, and can it be prevented? Does the failure to use queen excluders have anything to do with it?

ILLINOIS.

Answer.—The reason your bees have been storing pollen in the upper story, I judge, is that the honey crop has been intermittent, with you, probably as it has been with us. The bees, occupying the supers, have not made enough honey to fill them regularly as they usually do. So pollen has been brought in.

There is no way that I know of to extract that pollen. The best thing to do is to keep the combs containing it for feeding. If not needed, they may be extracted. The bees would probably remove most of this pollen in spring, when the yield of pollen has not yet begun. But the pollen must be dry, for if it became mouldy the bees could not use it and would have to cut it out.

Using queen excluders would probably help keep out the pollen. But queen excluders are such a nuisance that I would hesitate to use them, for this putting of pollen in the supers is not usual in the colonies. I believe the best remedy is to put those combs aside to be used in the extractor.

FALL SWARM

Can a swarm of bees be wintered that issue in the middle of August? Put in a hive with full sheets of foundation? What could have caused them to swarm this time of year? I never heard of it before. Would like to have your opinion on this subject, if you please.

INDIANA.

Answer.—I cannot answer positively either of your questions. If the swarm was strong and there is a fall flow of honey in your section of country, the swarm may gather enough and breed enough to make a success of wintering. The comb foundation will help in this matter, greatly, because comb costs the bees a great deal of honey, usually estimated at about 10 pounds for one.

If the swarm does not make enough to winter, you should find it out after the first frosts and feed them sugar syrup, 2 of sugar to 1 of water, in quantity sufficient to give them at least 25 or 30 pounds of stores. It may need more in the spring.

As to the second question of why those bees should have swarmed at the time mentioned, I cannot reply positively, either. It is quite probable that the hive from which they emerged was over full and that they had prepared to supersede the old queen. In that case they may have swarmed with the old queen, or perhaps with one of the young queens hatched, although the latter case is rare.

I will say to you what I repeat to all students. Buy a textbook or two and read them. You will thus learn many things which may help you to solve problems that cannot be solved by advisers living far away.

SOUR HONEY

I extracted my honey this year putting part of it in a closed container, which is keeping fine.

The rest of my honey I put in an open vessel with only a cloth across the top. All the crop of honey was ripe when extracted. The honey that was put in open vessel got thin on top and was souring. I dipped the honey down to where it seemed to be good and put the good honey up in jars. On examining it a few days ago this was souring.

Did this honey absorb enough moisture during the rainy weather we had which lasted about ten days, to cause it to sour? What can I do with the sour honey besides making vinegar out of it? It isn't very sour, just enough to tell it isn't good.

TENNESSEE.

Answer.—I am under the impression that your honey was not sufficiently ripened when you extracted it. However, if you kept it in a place where it could get the moisture, that would also have a tendency to help it ferment. Honey, during the summer, should be kept in a hot and dry spot, better put it in an attic than in the cellar, by all means.

As to the part that is fermented, if it has a bad taste, you cannot change it. But if it has only a certain amount of fermentation, you can evaporate that by heating. It will foam considerably in evaporating the gases of fermentation. In no case will it be good honey however. It would surely make good vinegar and that is one way of disposing of it. About two pounds of it to a gallon would make vinegar. After the alcoholic fermentation you can start the acetic fermentation with a little good vinegar. Keep it in a warm place, not less than 70 degrees, and give it plenty of air. Keep insects out by closing the vessel with a cloth or a sand bag.

CUTTING QUEEN CELLS

I only have a few colonies, and, this year, to keep them from swarming, I have been cutting out the queen cells once each week, and so far, I have not had a swarm, and all of my colonies are large ones, but don't store any honey. Can you tell me why this is? I am in a locality where there are hundreds of acres of white clover, and the bees seem to work it all the time. Do you think wet weather would cause the clover to be no good?

Is cutting queen cells a good way to keep them from swarming?

TENNESSEE.

Answer.—Cutting out queen cells will do when the swarming fever is not very strong; but when the bees are determined to swarm, they will swarm even if they have just built queen cells. However, there is some chance of its succeeding, especially in a wet, cloudy season.

As to there being no honey in the clover, that is a problem that we have often encountered and have never been able to tell

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He recognizes the efficiency of it; that it pays to use it. The above apiary is one of his 25 yards, totaling over 1,000 colonies of bees. The combs he builds are fine examples of those drawn from Wired Foundation.

Let him tell you what he thinks of it.

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MARSHFIELD MANUFACTURING COMPANY, Marshfield, Wis.

the reason why. There has been lots of clover bloom here and barely enough honey in it for the bees to breed, up to the first of July.

FREEDOM FROM MOTHS

Can you shed any light on how to keep dark brood comb free from moths or wax-worms? Is there anything a person could soak them in? I have tried several methods. I figure a good comb very valuable to me in time and labor.

Any formula or treatment would be greatly appreciated.

I have had combs completely riddled in two days; so I think something more than fumigating and sealing should be done.

ILLINOIS.

Answer.—There is no formula that we know of that would insure combs against moths, if they are left where moths can get at them. But if combs are fumigated twice in a month, say at this time, then put away where moths cannot reach them, there will be no further danger from them.

You report having had combs riddled in two days. Permit me to say that the combs that were riddled in two days had the moths in them for at least two weeks before, even if they were too small to be noticed by you. If those combs had been fumigated two weeks before, there probably would not have been any moths apparent in them.

The eggs of moths are from 5 to 27 days in hatching, according to the warmth of the atmosphere. Then they are from 30 to 100 days in the worm state. The only question for you to meet is the hatching of worms from the eggs after the first fumigation. Usually two fumigations, two weeks apart will do the trick. Then put your combs away in a room that has screens to keep out flies and bees. If you are still afraid of moths you may look at them once in a while, but I can tell you that I have kept combs, often, for a whole year in a beehouse and had no moths in them.

I would suggest that you buy a textbook on bees and read it.

FORCING HONEY TO SUPERS

I am using two hive bodies as brood chambers on my strongest colonies. Have been very successful controlling swarming, but find the side frames in the brood nest filled with a lot of capped honey. Am running for chunk honey in shallow extracting supers, and, not having colonies enough to have an extractor, I would be pleased to have you inform me if there is any way by which I could feed this honey to the bees so they would put it into the supers, or any way by which I can get this honey out of the brood frames without destroying the combs, as they are on Dadant's wired non-sag foundation and are splendid-looking combs.

SOUTH DAKOTA.

Answers.—In the first place it may be well to say that, as a rule, two hive bodies of the Dadant size are too much for brood chamber space. That is probably why you have so much honey in the brood nest. In order to get the bees to remove this honey and carry it to shallow supers, it would be best to wait until about the end of the crop; then uncap this honey and place the combs into supers above the combs in which you wish your bees to store it. It would be much better to use a honey extractor, and we believe that, sooner or later, you will need one.

Bear in mind that bees will hesitate to uncap honey which is stored above their brood nest, even if it is somewhat out of reach. But it is different with unsealed honey. They like to keep this as close to the brood combs as possible.

THE HUBER LETTERS

To Mr. De Vegobre, at Geneva

Lausanne, May 28, 1827.

If I had foreseen the bad weather of the present week, I would have spent it also near the kind lady friend whom I left with great regret.

The poor bees are not more provident in this regard than their invalid observer. The day following my arrival, that is to say, the day of our storms, the forenoon was fair and I had many visits, and especially that of a swarm which settled under the window of my parlour. Not believing much in luck, I attributed this visit to a homage and counted it of good omen. In order that the poor insects should not suffer from their forwardness, I insisted they be fed in a suitable manner so that the bad days be not injurious to them. A syrup of sugar in wine produced a good effect and we see them today as lively and as spirited as we might wish.

I had the pleasure, a few days ago, to hear a pretty woman tell a numerous audience what my last trusty friend had said about them in our Universal Directory Library of March. She spoke of it with the air one takes about new knowledge and I would wager that she had never read, nor perhaps heard, of the "Observations," which had furnished the subject; the work from which this was taken would be the gainer if it was described under that light. Too many details become tiresome and run the risk of annoying; those who must have them will find enough of them in my book; that which belongs to me really would not take so much space; the chapters on the architecture of bees could be abridged and the readers would lose nothing by it.

Reaumur, on account of his poor hives, could see only the art that bees use in polishing, in perfecting and in finishing their cells. My hives, with their transparent ceilings, have enabled me to see the first outlines and this was the most interesting. When you are in the mood and we talk about it again, I will tell you what is good to keep and what should be omitted.

Lausanne, Feb. 14, 1828.

To Mr. De Vegobre, at Geneva:

Writing the other day to one of my correspondents, I was brought, I don't know how, to mention the poisonous sting of our bees; I do not believe, sir that I ever mentioned it to you; perhaps you will not think it out of place if I do so today, while I have the time. I have but two things to mention about it and that will require but little attention or your part.

The first of those things is the prejudice generally established that the sting of bees and of other insects is an offensive weapon, dangerous for us and for all animals. If this were so, the earth which we in-

habit in common would be absolutely uninhabitable for all; as this is not true, the accusation falls of itself, but it might have been true; there is great ingratitude in not taking notice of it and blessing Providence for it.

Among other insects than our bees, the sting is purely a defensive or revenge weapon, or it helps to facilitate the entering and depositing of their eggs under the bark or in the parenchyma of plants in which is prepared the aliment suitable for their young.

The sting, in our bees, has more extensive uses, if not more important; it is the pivot about which all their police revolves and from which order, and therefore the happiness, of those swarms results; of those hives, in a word, which we cannot admire too much, even if we do not count upon the profit and the real utility that we draw from them.

A Frenchman, to whom I had loaned my book, sent me word, when returning it, that it contained nothing new, that it was only the B-A Ba of a science of which Reaumur had seen and said all that was interesting to be seen and said.

Dear and great Reaumur! Would you have been so unfair and impolite? No, you would not have looked with so unfair eyes upon your powerless pupil; it is to you that I owe all that I knew of bees before I ever studied them myself by following your excellent lessons. You had conveyed their history up to the time when the old queen lays her eggs within the royal cells. I had only to follow you from that. The thread which you had put in my hands led me to see a very strange spectacle, which neither you nor I could have foreseen; so I was very much astonished and almost scandalized, when I saw, through the eyes of my faithful secretary, the mother-queen herself destroying the royal cells eagerly and killing, with great strokes of her sting, the royal nymphs, whose germs she had but lately laid under my eyes; resting herself then a few moments to continue the destruction of all the larvæ and nymphs within the royal cells—in cases where the bad weather did not permit the issue of swarms during that season in the mother colony. From this assassination, a happy compensation was to result, rendering impossible the plurality of females of which you had feared the dangers; a few strokes of the sting had assured the happiness and peace in the republic, or if you like it better, of the constitutional monarchy.

Another usage of the sting, which is not less important and which Mr. de Reaumur seems to have guessed, is that which they make of it to get rid of their drones, which never happens until after fecundation; a very strange law, doubtless, and of which nothing in the purely physical conditions leads us to understand the constant and inevitable execution. It is a decree of Heavens, whose ways are not our ways, but of which the re-



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That fill the supers quick
With honey nice and thick

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested Queens, \$1.00; 6, \$5.00; 12, \$9.00. Select Untested, \$1.25; 6, \$6.00; 12, \$11.00. Safe arrival and satisfaction guaranteed. Circular free.

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For Practical Beekeepers— Lewis 4-Way Bee Escape



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Empty your full supers easily and quickly!

IT'S no longer necessary to shake bees in the hot sun or besting up taking off supers at night. The famous "4-Way" Bee Escape solves the problem. Fully guaranteed. Sample and full instructions, with 52-page 1924 catalog of latest improved quality supplies, sent postpaid to anyone in North America, 18 cents. Write today.

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PACKAGE BEES AND QUEENS

Most northern breeder in California. One select untested, \$1.00; 6, \$5.00; 12 or more, 75c each.

J. E. WING, Chico, Calif.

sults, for the bee family, are lucky and show us that wisdom presided to this.

If those wonderful bees had neglected to kill their drones, when they are no longer of any use, famine and total ruin would have been the infallible result, which must be avoided. It is not only the adult drones which they exterminate; their nymphs, their larvae and even their eggs are destroyed without mercy, which astonishes us when we have witnessed the care of which the male race was the constant object, in those same hives, whose bees, by an unconceivable revolution, have become at once their enemies and their executioners.

Express Company Values Bee Shipments

Concerning the above, we received some comments from a southern shipper of bees, Mr. Jes Dalton, and we insert the most interesting parts of his letter:

A Shipper's Remarks

American Railway Express Co.,

New York, N. Y.

Loss and Damage Department.

Gentlemen: I am in receipt of your circular, "Right Way Bulletin" No. 16, "Handling Live Bees."

As a shipper of several years' experience, I will congratulate you on both the thoroughness and spirit of your Bulletin. I believe at least nine-tenths of the loss in shipment is from smothering, or would come under that cause, too warm, too warm and getting excited, thereby generating heat (animal heat), in the package. One point you correctly stressed, the harmlessness of the loose or stray bees. Bees seldom sting when lost from the parent hive. Their nature is to sting in defense of home, and without any home there is nothing to defend.

But there is another side to this, those packages in being filled should be set or placed where no bees will alight on them, and if some do get on and are not brushed off before reaching the shipping point, they should be killed by the shipper. They are lost from their parent hive, and are a loss to shipper, and will never reach any destination; hence are only a source of annoyance to the public in general. They can easily be disposed of by wrapping one's hand in old newspapers and smashing all on outside of packages, ridding every one of their annoyance.

With all loose bees disposed of, an expressman could detect a "leaky" package and plug it up with old paper or rags.

Another point: It seems to me that there could be a more simplified and pleasant way worked out to adjust claims, arising from loss.

I had, a few seasons back, quite a lot of claims, one season, and I never could get even a decent reply from the claim department, until I finally placed all in the hands of an attorney. When I did this they were immediately paid, except one, which is still hanging.

It does seem that they could be adjusted without one having to have recourse to an attorney.

I will say that for this whole season I have not, thus far, had a single complaint, and very few last season. (This season is about through.)

You will see by my circular that you have delivered bees all over America without loss, even to Virgin Islands with no loss at all.

Louisiana.

Sweet Clover Increasing in Nebraska

That sweet clover is finding a place in the farming system of Nebraska is shown by figures compiled on the 1923 acreage. In 1922 Nebraska had approximately 65,000 acres of sweet clover. In 1923, this acreage increased 90 per cent, making a total acreage for the state of 124,500 acres. It is estimated that 1924 will show an equal increase in the acreage put in sweet clover, as well as a substantial increase in the alfalfa acreage. Sweet clover is being used chiefly as a pasture and soil building crop. As a pasture crop it makes a lot of feed and when fields of first and second year sweet clover are used the pasture season extends over a long period. As a soil builder sweet clover leads. It is the foremost legume crop to restore fields that have been grain farmed until the fertility has been more or less depleted.—(From Iowa Homestead, May 15, 1924).

Some Other Folks, Too

I have just been reading a copy of the Official Record of the United States Department of Agriculture. It tells of a tour of inspection by the Bureau of Public Roads over nine states. Travel was by motor bus over perfect roads of all kinds and the teller makes it evident that the enthusiasm of the party was practically sustained by the joy of the travel.

Little wonder! I have just come from Eastern Illinois where I visited a beekeeper who has nine hundred colonies of bees in several apiaries, all placed along an 18-foot concrete road. Rain or shine, early and late, he can work. What a joy! Here in western Illinois we have mud roads when it rains and dust roads when it's dry. It costs us much more to do business than our eastern friends.

So we are for hard roads, too, and just as enthusiastic as the folks in the Department.

Beeswax in France and Her Possessions

France imports each year large amounts of beeswax from her colonial possessions, chiefly from Algeria and Morocco. Beeswax has long been one of the principal exports from Algeria. According to a census in 1900 there were 224,776 colonies of bees in that country, but only 15,000 of them in modern hives. Most of the beeswax is prepared by the natives.

WHAT ARE YOU PAYING?

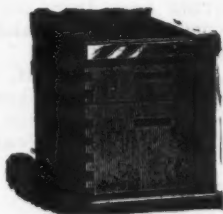
If you have not received our price list covering a full and complete line of honey containers, it will pay you to secure it at once.

Here at Council Bluffs we are carrying large stocks of friction top containers, 60-lb. cans, cased and in bulk, wooden and pasteboard comb-honey cases, glass jars in 3 sizes.

10% DISCOUNT FOR CASH DEDUCTABLE FROM LOW PRICES.

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MR. BEEKEEPER—

We have a large plant especially equipped to manufacture the supplies that you use. We guarantee all materials and workmanship. We ship anywhere. We allow early order discounts and make prompt shipments. *Write for free illustrated catalog today. We pay highest cash prices and trade for beeswax.*

LEAHY MFG. CO., 90 Sixth Street, Higginsville, Missouri

J. W. ROUSE, Mexico, Missouri. Texas Distributors, A. M. HUNT & SONS, Goldthwaite, Texas

HONEY

WANTED

HONEY

We are always in the market for honey, mail fair sized sample of extracted, state how much you have, how packed and your lowest price, delivered Cincinnati or f. o. b. your station. Comb honey, state how graded and how packed.

C. H. W. WEBER & CO., CINCINNATI, OHIO

WE MANUFACTURE FOUNDATION

— Our Specialty is —

Working your wax into foundation, for cash or wax in payment. Write us for list of supplies and get our prices on the best Hives. Sections, Frames, etc., made in Wisconsin.

GUS DITTMER COMPANY
AUGUSTA, WISCONSIN

TENNESSEE-BRED QUEENS

Fifty-two Years' Experience in Queen-Rearing
Breed Three-Band Italians Only

	Nov. 1 to June 1			June 1 to July 1			July 1 to Nov. 1		
	1	6	12	1	6	12	1	6	12
Untested.....	\$2 00	\$ 8 50	\$15 00	\$1 50	\$ 7 50	\$13 50	\$1 25	\$ 6 50	\$11 50
Select Untested.....	2 25	9 50	18 00	1 75	9 00	15 00	2 50	7 50	13 50
Tested.....	3 00	16 50	30 00	2 50	12 00	22 00	2 00	10 50	18 50
Select Tested.....	3 50	19 50	35 00	3 00	16 50	30 00	2 75	15 00	21 00

Select tested, for breeding, \$7.50.

The very best queen, tested for breeding, \$15.

Capacity of yard, 6,000. I sell no bees by the pound or nuclei, except with high-priced tested and breeding queens.

Queens for export will be carefully packed in long-distance cages, but safe delivery is not guaranteed.

JOHN M. DAVIS, Spring Hill, Tenn.

HONEY

We Buy — We Sell

We want honey all the time to supply our customers everywhere. You will find it profitable to keep us informed as to what you have and send us samples.

ALSO — If you need honey to supply your own trade, let us quote you. We also handle Airco Foundation, honey containers and bee supplies. Foster your business.

— BEES FOR SALE —

THE FOSTER HONEY & MERC. CO.
BOULDER, COLORADO

**DO
YOU GET
OUR
BEEKEEPER'S
BULLETIN**

PACKAGE BEES

By A. L. Lawsing.

I was interested in the article on p. 27, Jan., "The Package Business," by Jes Dalton. The last two seasons I have bought nuclei and package bees. As I have deep frames (modified Dadant hives), the frames I got with the nuclei were in the way until I got rid of them. So last year I ordered package bees. They came on extracting frames. The first package I transferred to the hive enabled me to understand Jes Dalton's view of the matter. We did not make a clean job of the first. We put a super on top of a hive and only about four empty combs on one side of the hive. Then we put the queen cage on top of the combs and brushed the bees on top as best we could. We put the shipping case on end in the hive by the side of the combs. We were working at night, and by this time we had each of us about a dozen bees inside our clothes next our skin. After hunting these out as best we could we told each other we had not been stung yet and went at it again. This time we only opened the shipping case enough to get the queen cage out. This we put on top of the combs and set the case on end in the hive with the opening we had made next the combs. The next day I found the cases empty and the combs occupied in every case except the first. In that case there were barely enough bees in the combs to keep the queen alive, the most of them were in the case stiff with the cold. Sunshine brought many of these around again. I have lost one hand, but find transferring bees from package to combs a very simple one-hand job, if the bees are not disturbed.

Although a beginner myself, I am conducting a course in beekeeping here in the school. I have nine boys in the course and we are all learning together.

Vermont.

Do Bees Move Eggs

To the question, "Do bees transfer eggs?" I will unhesitatingly say yes. When sealed queen cells are found on combs in the supers from which the honey has been removed eight days before, it is hard to suppose that the queen has been up to lay an egg or two in the super and then down to continue egg laying below. This is what I have observed. For a long time I have taken it for sure that bees transfer eggs or larvae for starting queen cells.

Bro. Alphonse Veith, Indiana.

A Good Sideline

I increased my 27 colonies to 47 and received \$646 for my time after working hours and had a barrel of honey left. Not so bad for a sideline. I have been getting \$1.50 for half gallon jars of honey and 30 cents for pound jar and 25 cents per section.

Fred Gerretsen, Fox Lake, Ill.

HONEY PACKAGES



Genuine Lithographed Pails

Made in four beautiful colors, furnished in the 2½ pound, 5 pound and 10 pound sizes. The only **Rust Proof** honey package on the market today. Your name **PRINTED** (not stenciled or stamped) on the cans without charge, in lots of 100 or more.

Sample 5 pound pail by parcel post for 20c in stamps

We use these pails exclusively in packing DADANT HONEY

Our lithographed pails are enameled throughout, inside, outside, top and bottom. They are really **rust proof**.

Rust Proof

They will not corrode from contact with honey or water and can be used again and again. No other pail on the market offers this wonderful opportunity to advertise your honey continuously.

Comb Honey Cartons

When each section of honey is packed in an individual carton it is kept free from dust and dirt. Honey is always attractive and brings a higher price. New design. Sample 5c.

Plain Pails and Cans

Our friction top cans and pails are shipped in **dust proof** cartons. Cans will reach you clean and in good shape to pack your honey. Our re-shipping cases for 12 5-lb., 24 2½-lb. and 6 10-lb. are specially made and will carry honey safely. The 60-lb.

cans are packed in strong cases with real hand holds. A cheap, light case is the poorest advertisement for your honey.

Glass Jars

Famous Diamond I Jars. Clear glass, beautiful packages. Made by one of the largest glass factories in the world.

Comb Honey Shipping Cases

All wood, glass front, and corrugated.

Send for Complete Price List

**Tell Us What You Need
We Can Save You Money**

Dadant & Sons, Hamilton, Illinois

Mott's Northern Bred Italian Queens

Select untested, \$1.25 till June 1; \$1.00 each thereafter. Select guaranteed pure mated, \$1.25. Select tested, \$2.00. Virgins, 50c. 172 miles east of Windsor, Ont. Save 48 hours in transit from the far South. Satisfaction and safe arrival guaranteed.

E. E. MOTT,
Glenwood, Michigan.

GOLDEN QUEENS

Untested, 90c each or six for \$4.50; 100 untested queens, \$60; tested queens \$1.50 each. I guarantee safe arrival, satisfaction and ship nothing but the best.

G. A. TAYLOR
Lock Box. Luverne, Ala.

Crop in New York

From Willson's August News Letter, we learn that the crop in New York is the poorest in ten years. In the Finger Lakes country, no white honey will be harvested if basswood does not yield. In eastern New York the crop is in general short, about 25 per cent normal. Western New York reports less than half a crop. In the north conditions are better, with 60 per cent normal, but a shortage of comb honey.

Beekeepers' Day in New Hampshire

In connection with Farmers' and Home Makers' Week at the University of New Hampshire, August 12-15, there is to be a special program for beekeepers on Thursday, August 14. The annual meeting of the New Hampshire Beekeepers' Association will be held at the same time.

Mid-West Horticultural Exposition

F. B. Paddock, superintendent of the Honey Products Department of the Mid-West Horticultural Exposition, is planning a fine exhibit for this year and offers a great chance for beekeepers all through the mid-west to enter a real live competition for prizes. This work is fun, gives each prize winner a fine boost, is a good advertisement, and makes us live up to the best in the game.

If you live in the mid-west you owe it to yourself to exhibit. Write F. B. Paddock, Ames, Iowa, for the premium list and full information. The exposition is to be held at Waterloo, Iowa, November 11-16. It is one of the biggest events in horticultural circles and well worth taking a vacation to attend.

Southern Michigan Field Meet

The Southern Michigan Field Meet was held at the home of Earl Kellar, July 25th. Mr. F. E. Bierman, President of the Lenawee County Association, writes us that there were 51 autos, all loaded to full capacity. That means over 200 people. They had such leading men as E. R. Root, Kindig, Kelty, etc., as speakers. A basket picnic was enjoyed by all. They decided to hold the same meeting next year on the second Friday in July. Location will be announced later.

Mr. Bierman is 60 years old, but declares himself fully able to fulfill the duties put upon him by the beekeepers of Michigan.

Last Winter's Losses

According to the Government statistics, the winter loss the past winter was 11.8 per cent. This was average. But think what it means. In our apiaries at Hamilton, it would be 60 colonies. How many would it be in yours? Our loss was 12 colonies, so someone else must have lost a great many to give us a show in the average. There is only one reason for such a high figure—poor beekeeping.

"The World is our Market"

Benninghof Farm Queens

Production, Gentleness, Color

For the first time in 1928 we brought to the attention of the American beekeepers our strain of Italian Bees, which we had been perfecting for the previous 20 years, to secure a race of bees superior to any that could be purchased.

In order that the beekeepers of the country might share in the advantages of these superior bees, we offered for sale to interested parties a limited number of these excellent queens.

The results last season were so highly satisfactory to our customers that we again place before the discriminating beekeeping public our superior queens.

Untested	1	6	12
Tested	\$1.00	\$5.50	\$10.00
	1.50	8.00	15.00

For Fall Requeening at \$85.00 a hundred.

BENNINGHOF FARM Station F **Columbus, Ohio**



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You can have cash for your wax and old combs or cappings at the market price, or we allow a little more in exchange for supplies

Write for our terms and prices

"falcon" Supplies, Queens, Foundation

Booklet, "Simplified Beekeeping for Beginners" free

Write for catalog

W. T. FALCONER MFG. COMPANY, Falconer, (NEAR JAMESTOWN) N. Y., U. S. A.

"Where the BEST Beehives come from"

Uintah Basin

In Uintah Basin, Utah's great inland empire, there are three crops that are paying off the mortgages and bringing wealth to this new, but rapidly developing section. They are, turkeys, alfalfa seed, and the honey-bee. This humble trinity has gone to work in that undeveloped empire, and unless all signs fail, will make of it a land flowing with alfalfa seed and honey. Imagine thousands of acres of purple alfalfa blossoms swaying in the breeze and wafting faint but sweet invitations in all directions, and then imagine hundreds of millions of bees intoxicated by the fragrance of hidden nectar, and imagine again, if you can, thousands of stately turkeys silently and relentlessly following the grasshoppers and other insects that prey on the alfalfa which form his principal diet, and you have some idea of Uintah Basin in June and July. Uintah honey, on account of its sweet alfalfa nectar, is gaining a reputation for its delicious quality. One grower recently shipped a carload of 48,000 pounds of honey.

Bees in Prairie Dog Chimneys

It is reported that thousands of black-tailed prairie dogs have been exterminated in the Colorado district through the systematic effort of the local people under the direction of the Biological Survey of the United States Department of Agriculture and the Colorado Agricultural College. On the many sloping hillsides in Douglas County the old chimneys of the vacated burrows of these prairie dogs are still visible. Swarms of bees have been discovered going in and out of these chimneys, and the buzzing in the enlarged cavities below indicates that honey is being stored there.

—(Western Honey Bee).

Ford's Paper O. K's Honey Mixture

Honey in the radiator as an anti-freeze mixture, recommended in Capper's Weekly by Herbert Link, Indiana beeman, also is recommended by Henry Ford's paper, the Dearborn Independent. Link advised using 1 part water, 2 parts honey and stirring this together with a handful of caustic soda. The Independent's formula mixes honey with water, half and half. That paper advises engine head gaskets and hose connections be tightened before using the mixture, as honey water will pass through apparently tight connections, causing stickiness. The solution, according to Ford's paper, becomes more efficient with heating, due to operation of the car, where an alcohol solution loses strength. A dollar and fifty cents' worth of dark honey unfit for table use is enough to last all winter.—(From Capper's Weekly, Feb. 2, 1924).

HONEY IN 5^{LB} PAILS

Ready for you to sell

Make
Money



Sell More
Honey

Selling honey becomes more profitable when you are assured of high quality, uniform taste, texture and color and a clean, neat package.

Amenia honey comes to you in five-pound pails, labeled and lithographed, packed 12 pails to a case.

The price is made attrac-

tive so that you can buy it and resell at a handsome margin of profit.

Behind our honey is a powerful selling plan which is given without cost to every agent selling Amenia Brand Honey.

Why not get in touch with us now for your future honey needs?

Write for free selling hints to
CHAFFEE-CRITES BEE FARMS
•AMENIA, NORTH DAKOTA•

More Air More Honey—VENTILATE As Fast As We Make Them

We are Beekeepers—big ones, too. Five years ago we invented and patented a Ventilator that fits between the box and top. These have been in continuous use at some of the largest apiaries in Texas. Every user reports increased production and perfect conditions as result of this practical ventilation. We are selling them as fast as we can make them. Have now increased our plant.



SEND FOR BOOKLET

Our free booklet was written by practical beemen. It is of unusual interest to practical beemen. It is free. Your request will bring one at once.

PAYS FOR
ITSELF IN
ONE SEASON

MONEY-BACK GUARANTEE

Every HEIM VENTILATOR is sold on an unconditional Money-Back Guarantee. We have a special trial offer. Ask us about it.

THE HEIM BEE VENTILATOR CO.
THREE RIVERS, TEXAS

60 CENT QUEENS

AT THIS LOW PRICE CAN YOU AFFORD TO LET A SINGLE COLONY GO INTO WINTER QUARTERS WITH AN INFERIOR QUEEN

These queens are the same high quality that have been sent out throughout the season. With the fall honey-flow on and the bulk of the expense of rearing these queens already incurred and disposed of we pass the saving on to our customers and others who want to try out a really reliable strain of PURE ITALIAN QUEENS.

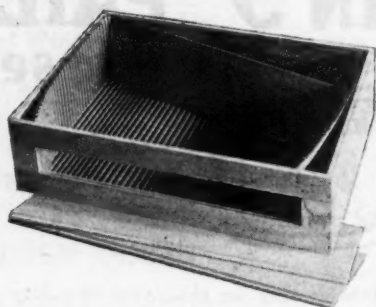
Order directly from this Ad. Untested, 60c. Select untested, 75c. Tested, \$1.00 in any quantity. Customers. We thank you all for past favors, and solicit your future orders on the merits of our goods and service.

SUCCESS BE YOURS.

JENSEN'S APIARIES

N. C. JENSEN
Proprietor

CRAWFORD, MISS.



"A TREMENDOUS SUCCESS"

IF you are going to market your honey in wooden display cases, our **NEW IDEA DISPLAY CASE** is the cheapest good case you can buy. We announced this case two years ago, and have sold it since in increasing quantities. For it answers a wide demand for a cheaper wooden case of artistic finish, which will permit the most advantageous

display of the honey. While it is chiefly a display case in which to market honey locally, many producers have used it successfully in shipping. The verdict of those who have used it is that the case is a tremendous success.

At the prices listed below, you will want to sell your combs in this attractive case, furnished with 2-in. glass, paper, and corrugated cardboard, regular in dimension, for 24 sections, one tier style.

For all sizes:

Per 10, complete in the K. D. at...\$3.85

Per 100, complete in the K. D., at...\$32.50

LESS 10% DISCOUNT FOR CASH WITH ORDER.

THE A. I. ROOT COMPANY OF IOWA, Council Bluffs, Iowa

HONEY WANTED

We are ready at any time of the year to take in small or large lots of extracted honey. Send us a sample and advise quantity you have and the price wanted.

HOFFMAN & HAUCK, OZONE PARK, N. Y.

SCOTT QUEENS IN SEPTEMBER

One of our prolific queens introduced this month will provide the best possible insurance against winter loss by building up a large force of young bees. Requeening this fall is also the best way to insure a bumper crop next season. Based on results obtained, **SCOTT QUEENS** are very economical to use. Many good reports prove they get results.

Three-banded queens during September: \$1.00 each.

THE SCOTT APIARIES, LA GRANGE, IND.

Crop and Market Report

Compiled by M. G. Dadant

For our September Crop and Market Report we asked our correspondents the following questions: 1. How is the crop compared to last year? 2. What are the prospects for the balance of the year? 3. What prices do you expect on comb and extracted?

THE HONEY CROP

In the first place, the honey crop has been extremely spotted this year, and this applies to practically all sections of the country. The rainfall or lack of rainfall has struck almost every state locally by sections, so that some parts of the state may report an excellent crop while others are drought bound. Roughly speaking, the New England States and New York and Pennsylvania will have less honey than last year, the average running from 25 to 75 per cent of a year ago. Ohio reports about 120 per cent, Indiana 150 to 200 per cent, Michigan almost normal, Wisconsin from 70 to 90 per cent, Minnesota almost normal, Illinois 125 to 150 per cent, Iowa 100 to 150 per cent, Missouri 150 per cent, South Dakota 125 per cent, Kansas and Nebraska 150 per cent, Inter-mountain territory 80 to 120 per cent, Arizona 50 per cent, New Mexico 100 per cent, Montana 25 to 75 per cent, Idaho 75 per cent, Nevada, Wyoming and Utah about 100 per cent, Oregon and Washington 100 per cent, California 100 per cent.

The southeastern states will have more honey than last year, the average running about 120 per cent. Texas, of course, would have double last year's crop, although yet considerably below normal.

All percentages as given above are comparative with last year's crop. Taking the country as a whole it is very probable that the honey production will run slightly in excess of 1923 season. However, the difference is that the large honey producing areas will probably not contribute as large an amount as a year ago. This would indicate that the heavy populated areas, like Illinois, Indiana, Ohio, etc., will bring up the average. It will also mean that much of the honey produced in this state will be disposed of locally, so that there will not be the flooding of the big markets. Taken as a whole, although probably the honey crop will be in excess of last year, there is no reason to presume that the honey which is to be marketed in a large way should exceed that of a year ago, and probably will be considerably less. This is undoubtedly true of comb honey, as the big producing areas are falling far short on comb honey production. Comb honey, of course, will be a little more plentiful in the Central West in white clover areas, but without much doubt it will all be disposed of locally without interfering with the demand in the larger cities which handle in car lots.

PROSPECTS FOR BALANCE OF YEAR

As one Montana contributor has written, "bees are in good shape, plants in good shape, weather conditions rotten." The prospects for the balance of the year in such areas as generally produce a fall crop depend entirely on the weather, and the weather has not been exactly favor-

able. There has been too much rain and the temperature has been too low for the best honey production. Of course, a prolonged fall without frost, together with warmer weather, and cool nights, would make probably for a better than average fall crop. However, the fall crops should have little bearing on the general supply of honey which, to my mind, will run slightly in excess of last year, but not sufficiently in excess to make up for the stock held over from the 1922 season.

PRICES OF HONEY

Practically all reporters were unanimous in stating that honey should bring at least as good a price during the 1923 season. Several are frank in suggesting that the price should be considerably higher. One very promising note in reports coming in was that there was an almost absolute absence of reporters who expected to get a low price for their honey this year. One reporter from Indiana suggested a price of 80c for five-pound cans, retail, but outside of this his general average was from \$1.10 to \$1.25 retail, with a price of about 35c to 40c for comb honey, retail.

There is probably more fluctuation in the price of comb honey than there should be as between the East and the West. Well informed western producers are expecting a price of from \$4.50 to \$5.00 for comb honey, whereas we have some smaller eastern producers who are also expecting the same price. This is not as it should be. The eastern producer should figure on what the western honey would cost delivered and charge accordingly, so that there will be a uniform price for comb honey, providing the grade is the same. Very probably this last is the stumbling block. In fact the writer has seen in many small central west cities honey which was so poorly graded that it could not under any condition compete with the western article carefully graded by Colorado rules.

Honey crop conditions have not depreciated sufficiently to warrant any change in suggested prices as given in the August number of the American Bee Journal. We are, therefore, repeating this price schedule for the benefit of our subscribers. Undoubtedly there might yet be influences enter into the honey situation which would tend to reduce the price somewhat, such as a reduction in the duty on sugar, general depressing business conditions everywhere, etc.

However, these are hardly probable and will be offset considerably by a smaller fruit crop generally and very probably a little better business conditions, both agriculturally and otherwise during the bulk of the honey selling season. In fact, the writer would not be surprised to see a stiffening of honey prices over a year ago which, of course, probably would not affect the retail honey prices so much as the prices in car lots.

It is a little early to predict for 1925 honey crop, but our idea would be that if the present conditions prevail into the crop season beekeepers would do well to sell as closely as possible, as it is hardly to be expected that we will have a third short crop in succession.

	5-lb. Retail	Retail 10-lb.	Top Lots 5-gal. White	Carload 5-gal. White	Carload 5-gal. Amber	Comb Fancy Case	Comb Fancy Car lot	Bulk Comb Jobbing
East.....	\$1.25-\$1.50	\$2.20-\$2.50	12c	11c		\$7.00		
Southeast.....	.90- 1.25	1.75- 2.00	11c	10c	9-10c	5.50-6.00	4.50-5.75	17c
Texas and Southwest.....	.90- 1.25	1.75- 2.00	10c	9c	7-8½c			15-17c
Central West.....	1.15- 1.35	2.00- 2.25	13c	11-12c	8-9½c	6.50		
Plain States.....	1.00- 1.15	2.00- 2.15	12c	10-11c	8-9½c	6.00		
Inter-mountain.....	.90- 1.25	1.75- 2.00	10c	9c	7½-8½c	5.75	4.50-5.25	
Coast.....	.90- 1.10	1.65- 2.00	10c	8½-9c	7-8½c	5.50	4.25-4.75	

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Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 15th of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

As a measure of protection to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

BEES AND QUEENS

FOR SALE—Young queen bees, 3-banded Italians, \$1.00 each. Jager Apiaries, St. Bonifacius, Minn.

FOR SALE—200 to 800 hives of my bees; good location, cement and gravel roads, under one of the largest and best irrigation systems in the world. Fine all year climate. J. W. Powell, Mesilla Park, New Mexico.

LOOK at these prices. 1 untested, \$1; 6, \$5.25; 12 or more, 75c each; tested, \$1.75 each. Certificate of state inspector with each shipment, and safe arrival insured. Golden Italians only. Hazel V. Bonkemeyer, Rt. 2, Randleman, N. C.

FOR SALE—100 colonies bees in 10-frame Jumbo hives, together with all equipment as extractor, supers, storage tanks, etc. No disease. Particulars if interested. E. V. Tillson, Tillsonburg, Ontario.

WARRANTED pure mixed Italian queens by return mail at \$1.00 each in my special introducing cage that never fails. I have a good supply of fine queens now, so I can fill orders promptly. No honey used in candy. Daniel Danielsen, Brush, Colo.

ON SHARES for 1925—75 to 150 swarms of bees. Montana preferred, but will go to Washington, Idaho or California. A. O. Olson, Belgrade, Mont.

BRIGHT September Queens—1 to 100, 60c; selected tested, 1, \$1.25; 12, \$12.00. Satisfaction guaranteed. W. C. Smith & Co., Calhoun, Ala.

ST. ROMAIN'S Quality Bees—I am offering for sale, three-banded Italian bees and queens at a very low price. I am booking orders now with 10 per cent with orders, balance twenty days before shipment. Spring delivery to be made April 15th to 20th, 1925, depending on weather condition. I also guarantee safe arrival and will pay transportation on any size order, from one package to a carload. Health certificate with each shipment. For prices and circulars write to John St. Romain, Marksville, Louisiana.

FOR SALE—50 colonies Italian bees in 8-frame hives, mostly new, wired combs, full sheets, guaranteed free from disease, state inspected in July. Reason for selling: we have more than we can properly pack for wintering. Silsbee Apiaries, R. D. 1, Bath, N. Y.

FOR SALE—1,400 colonies bees equipped for extracted honey, trucks, large warehouse, honey business taking 50 to 100 tons honey yearly; everything modern and the best; \$7,000 cash, balance time to suit. Or will sell in lots to suit. After 34 years I wish to retire from the business; \$7,000 cash, balance time to suit. Do not write unless you mean business. Bert W. Hopper, Rocky Ford, Colo.

ONE DOLLAR gets two of our high grade Italian queens in September. Guaranteed to please. J. J. Scott, Crowville, La.

FOR \$1,000 CASH you can buy one of the best paying queen and package businesses in Alabama. Yearly business amounts to \$3,000, and will pay the price we are asking for it, profit each year. If you are a honey producer and need 500 to 1,000 packages with queens, or if you wish to do an early queen and package business and then go North and make your honey crop this is the opportunity. This outfit is free of disease, a real bargain if you act quick. Other interest requires owner's time. Address: Queen Breeder, care American Bee Journal, Hamilton, Ill.

FOR SALE—200 colonies bees in healthy condition. Write for prices. James Johnson, Pocahontas, Ark.

HONEY IN PAIRS—Atwater, Meridian, Idaho.

TRY my Caucasians and be your own judge. Tested, \$1.50. Yard inspected and found no disease of any kind. Peter Schaffhauser, Havelock, N. Car.

SIMMONS QUEENS give results. This is the month to requeen. One, \$1.50; six, \$7.50; twelve, \$14.00. Fairmount Apiary, Livingston, N. Y.

THREE-BAND Italian bees and queens. One selected tested queen, \$1.50; one selected untested queen, \$1.00; six or more, a liberal discount. J. Allen, Catherine, Ala.

PURE ITALIAN QUEENS by return mail. Reared in natural honey flow, and strictly for business. The best are the cheapest. Let me prove it. July, August and September prices: 1, \$1.00; 6, \$5.00; 12 or more, 75c each. Most northern breeder in California. J. E. Wing Chico, Calif.

PRICES RIGHT—Pinard's queens and package bees. Quality satisfaction guaranteed. Young, laying, untested queens, \$1.25. Two-pound package bees, \$3.50. For larger lots write. Circular free. A. J. Pinard, Morgan Hill, Calif.

GOLDEN ITALIAN QUEENS—The big, bright, hustling kind. Satisfied customers all over the United States. Untested, 90c each; 6, \$4.50; 12, \$9.00; 100, \$70.00. Tested, \$1.50. E. F. Day, Honoraville, Ala.

ITALIAN QUEENS—The quality kind: 3-bands or goldens. One, 80c; six, \$4.50; dozen, \$8.50. Virgins, 30c; tested, \$1.50. Full requeening will reduce winter loss and insure a crop for next season. Satisfied customers everywhere. Complete satisfaction guaranteed. Crenshaw County Apiary, Rutledge, Ala.

GOLDEN ITALIAN QUEENS, untested, \$1.00; 6 for \$5.40; 12 or more, 80c each. Tested, \$1.50. Select tested, \$2.50. No disease good queens. Safe arrival and satisfaction guaranteed. D. T. Gaster, Rt. 2, Randleman, N. Car.

"SHE-SUITS-ME" three-banded Italian queens, untested, \$1.00 each, after June 1; in May, \$2.00 each. If you wish 50 or more, write for price list. Tested queens, \$3.00. Nuclei and packages of highest quality at reasonable prices. Allen Latham, Norwichtown, Conn.

GOLDEN Italian Queens. Tested queens, \$2 each; untested queens \$1 each; when I have them hybrids 3 for \$1. Satisfaction in all cases. J. F. Michael, Rt. 1, Winchester Ind.

CARNIOLAN QUEENS—Bred from imported mothers of pure Alpine stock. Lockhart's best select breeding strain is their support. No better combination could be arranged. Prices, 1 select untested, \$1.00; 6, 90c each; 12, 80c each, and 25 or more, 75c each. Circular free. M. G. Ward, Lathrop, Calif.

TRY PETERMAN'S QUEENS—I select out and sell only perfect, large, thrifty layers, killing all others. I figure this pays for repeat orders. They are bred from choice Jay Smith breeders by a thoroughly experienced breeder who is absolutely honest and reliable. Circular free. Reduced prices after June 30: 1, \$1.00; 6, \$5.50; 25, 90c each; 100, 80c each. H. Peterman, Lathrop, Calif.

IF YOU WANT good, bright Italian queens by return mail, send your order to us; 75c each, \$8.50 per dozen. One-pound package with queen, \$2.75; 2 lbs., with queen, \$4.50. We pay charges. Graydon Bros., Rt. 4, Greenville, Ala.

BIG, bright Italian queens, 75c each, by return mail. P. B. Skinner, Greenville, Ala.

SEE my display ad., page 444. Jes Dalton, Bordelonville, La.

FOR SALE—Italian bees and queens. One-pound package with untested queen, \$2.50; 2-lb. package with untested queen, \$3.50. Queens, untested, up to May 15, \$1.00 each. O. P. Hendrix & Son, West Point, Miss.

GOLDEN ITALIAN QUEENS, producing bees solid yellow to tip. Selected untested, \$1.00; tested, \$2.00. Disease free; safe arrival and satisfaction guaranteed. H. G. Karns, Victoria, Va.

FOR SALE—Golden Italian queens. Untested, \$1.00; 6 for \$5.50; 12 or more, 80c each; tested, \$1.50; select tested, \$2.50 each. Write for prices on large quantity. No disease of any kind. Safe arrival and satisfaction guaranteed. Sam Hinshaw, Randleman, N. C.

GOLDEN THREE-BANDED and Carniolan queens. Tested, \$1.00; untested, 75c each. Bees in 1-pound package, \$1.50; 2 pounds, \$2.50; 3 pounds, \$3.25. Safe delivery guaranteed. C. B. Bankston, Box 65, Buffalo, Leon Co., Texas.

BRIGHT Three-band Italian Queens—\$1.00 each, 6 or more 75 cents. Two and three-frame nuclei. Tupelo Apiaries, J. L. Morgan, Apalachicola, Fla.

BREEDER of fine Italian queens. C. B. Saunders' Apiaries, Merom, Ind.

ITALIAN QUEENS of quality, \$1.00 each, \$11.00 for 12. W. E. Buckner, Mt. Vernon, Ga.

FOR SALE—Three-band Italian queens, untested queens \$1.00 each; 6, \$5.50; 12, \$10.00. Tested queens, \$2.00 each. Robert B. Spicer, Wharton, N. J.

MERRILL'S QUEENS—\$1.00 each. R. E. Merrill, Muncy, Pa.

BRIGHT three-banded Italian queens. Prices before July 1, one \$1.25; six, \$6.50; twelve, \$12.00. Prices after July 1, one, \$1.00; six, \$5.00; twelve \$9.00. I guarantee safe arrival, pure mating and satisfaction. J. F. Diemer, Liberty, Missouri.

HARDY ITALIAN QUEENS—\$1.00 each. W. G. Lauver, Middletown, Pa.

GOLDEN and three-band queens reared in separate yards; booking orders for 1924. Untested, one, \$1.25; doz., \$11.50. Safe arrival guaranteed in U. S. and Canada. Tillery Bros., R. 5, Greenville, Ala.

FINEST ITALIAN QUEENS, \$1.00 each. Wm. R. Stephens, Wingate, Ind.

BIG, bright, northern bred Italian queens. Bred for beauty and honey-gathering qualities. Untested, \$1.00 each; \$11.00 per dozen. M. P. LeMunyon, R. F. D. No. 3, Cassopolis, Mich.

FOR SALE

FOR SALE—125 stands of bees, 450 extracting bodies with combs, comb supers, excluders, a lot of empty hives, some used, some new, all 8-frames in good condition, free from disease. Write Geo. A. Adams, R. No. 5, Box 72, Greeley, Colo.

FOR SALE—One of the best paying queen and package businesses in south Alabama. Package Shipper, care American Bee Journal, Hamilton, Ill.

FOR SALE—44 gallons Hutzelman solution. All or part, \$1.50 per gallon. Clyde Fisher, Joliet, Montana.

FOR SALE or **RENT**—40 colonies bees with this year's crop. Modified Dadant hives. Write. F. R. Belt, Rt. 5, Canton, Ill.

HONEY IN PAIRS—Atwater, Meridian, Idaho.

PACIFIC NORTHWEST—2 2-10 acre home on the Columbia River in the fertile Yakima Valley under irrigation. Thirty colonies of bees with extracting equipment. Home completely furnished. Price \$3,500 includes cows, chickens, equipment. Everything ready for occupation. Owner, Alf. Hansen, Richland, Wash.

FOR SALE—Good second-hand 60-lb cans, 2 cans to a case, boxed, at 60c per case, f. o. b. Cincinnati. Terms cash. C. H. W. Weber & Co., 2163 Central Ave., Cincinnati, Ohio.

FOR SALE—120 acres irrigated unimproved land in Wyoming, \$30 per acre. Will grow 500 tons alfalfa per year. Easy terms. Would accept some bees in 10-frames or larger equipment on this. Asher F. Dillard, Walthill, Neb.

FOR SALE—About 50 colonies bees, healthy, with complete super and extracting outfit, at a bargain.
C. H. Mundorff, Kirkwood, Ill.

FOR SALE—White and amber extracted honey. Write for prices. State quantity wanted.
Dadant & Sons, Hamilton, Illinois.

HONEY AND BEESWAX

FOR SALE—Extra fancy white clover extracted honey, new cases, new crop. Write for prices.
Edw. A. Winkler, R. D. 1, Joliet, Ill.

FOR SALE—New crop comb honey, No. 1 white, \$5.50 per case; No. 2, \$4.50, six cases to carrier.
H. G. Quirin, Bellevue, Ohio.

HONEY FOR SALE in 60-lb. tins. Basswood and white clover, 12½¢ per lb.
Milo Keller, Correctionville, Iowa.

FOR SALE—California white orange honey. Sample and price sent on request.
Chas. L. Hurd,
120 N. Lime St., Riverside, Calif.

FOR SALE—Several tons clover-basswood extracted honey; also buckwheat, packed to suit purchaser. A limited amount of comb honey.
The Silsbee Apiaries,
R. D. 1, Bath, N. Y.

FOR SALE—Choice clover extracted honey in 60-lb. cans. Case or carload lots. Write for price, stating quantity desired.
J. D. Beals, Oto, Iowa.

FOR SALE—Extra fine white clover extracted honey in new 60-lb. cans, two in case, 11¢ per lb. Sample 20¢. Also comb honey.
Martin Carmose, Ruthven, Iowa.

FOR SALE—White clover honey in new 60-lb. cans. Prices on request.
John Olson, Davis, Ill.

FOR SALE—Fine quality of raspberry-milkweed honey in new 60-lb. cans.
P. W. Sowinski, Bellaire Mich.

FINE QUALITY clover honey. Prices upon request. State amount wanted.
C. S. Engle 1327 23rd St., Sioux City, Ia.

FOR SALE—Fine quality clover and clover-basswood honey in 60-lb. cans.
Irvin Nordgaard, Peterson, Minn.

FOR SALE—Extracted honey in small or large quantities, prices upon request.
Superior Honey Producers' Exchange,
Delphos, Ohio.

FOR SALE—A few tons of very choice white clover extracted honey in new 60-lb. cans. Prices on request. Sample 15¢.
L. W. Mundhenke, East Dubuque, Ill.

HONEY IN PAILS—
Atwater, Meridian, Idaho.

FOR SALE—Clover honey in 60-lb. cans. None finer. Satisfaction guaranteed.
J. F. Moore, Tiffin, Ohio.

FOR SALE—White honey in 60-lb. cans; also Porto Rican in 50-gal. barrels. Samples and prices on request.
A. I. Root Co.,
16-18 Jay St. New York, N. Y.

FOR SALE—Comb and extracted white clover honey. Extracted in 60-lb. cans, 5 and 10-lb. pails. Prices given on request. Sample 15¢.
F. W. Summerfield,
Waterville, Ohio.

BEESWAX WANTED—We need large quantities of beeswax and are paying good prices now. Ship to us at Hamilton, Ill., or Keokuk, Iowa, or drop us a card and we will quote f. o. b. here or your own station, as you may desire.
Dadant & Sons, Hamilton, Ill.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans; also white alfalfa in cans. State quantity wanted and we will quote prices. Samples on request.
Dadant & Sons, Hamilton, Ill.

HONEY FOR SALE in 60-lb. tins. White clover honey crystallized, 13¢ per pound. L. A. West Indian honey, liquid, 11¢ per pound.
Hoffman & Hauck, Inc.,
Ozone Park, N. Y.

SUPPLIES

FOR SALE—A wax extractor, good as new. Used a very little.
Geo. L. Anderson,
Star Route, Clayton, Ill.

FOR SALE—Second-hand cans. Price per case of two 60-lb. cans, 50¢.
E. P. Fosse, Marion, Ill.

FOR SALE—Power saw table, for making beehives, etc.
Nic. Klein, Hudson, Iowa.

FOR SALE—One No. 25 Root self-reversing hand power four-frame extractor, condition like new, price \$50. We are now using a large power extractor, which is reason for selling.
Eskils' Apiary,
Iron Mountain, Mich.

DO NOT BUY your pails and cans for honey until you read my cut price circular.
A. W. Smith, Birmingham, Mich.

OUR entire stock of 60-lb. cans half price for balance of season. Other bargains.
A. V. Small, Root Bee Supplies,
Augusta, Kans.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list.
American Bee Journal, Hamilton, Ill.

SPECIAL PRICES—We are offering at specially low prices some very high grade material in shipping cases, frames, hives and miscellaneous which represent items we no longer carry regularly in stock or which have to be closed out to make room for new stock specially equipped to take Dadant's Wired Foundation. If interested, write for list; we can save you money.
Dadant & Sons, Hamilton, Ill.

CONNECTICUT and Rhode Island headquarters for Root's Beekeepers' supplies.
A. W. Yates, 3 Chapman St., Hartford, Conn.

WESTERN BEEKEEPERS—We can demonstrate that you can save money on buying bee supplies of best quality. Write for our latest price list.
The Colorado Honey Producers' Association,
Denver, Colo.

ATTRACTIVE LOW PRICES—Write us for list of odds and ends, shipping cases, hives, etc., first grade, priced to save you money.
Dadant & Sons, Hamilton, Ill.

MISCELLANEOUS

WESTERN HONEY BEE, 428 S. Hewitt St., Los Angeles, Calif., published by Western beekeepers, where commercial honey production is farther advanced than in any other section of the world. \$1.00 per year. Send for sample copy.

BEES AND HONEY—George W. York, editor, Spokane, Wash. Sample free.

GLEANINGS IN BEE CULTURE, published at Medina Ohio, is the most carefully edited bee journal in the world. Its editor-in-chief is Geo. S. Demuth. Its field editor is E. R. Root. Ask for sample copy.

WE HAVE NOW ON HAND, from Paris, a number of copies of the excellent work of Perret-Maisonnette, in French, entitled "L'Apiculture Intensive & L'Elevage des Reines." The first shipment was delayed over two months. The price of this very progressive work is \$1.50 by mail, prepaid.
American Bee Journal, Hamilton, Ill.

THE BEE WORLD—The leading bee journal in Britain, and the only international bee review in existence. It is read, re-read and treasured. Will it not appeal to you? Specimen copy free from the publishers. The Apis Club, Benson, Oxon, England. Send us a postcard today. It is well worth your little trouble.

THE "Archiv fur Bienenkunde" is a valuable scientific publication. "It merits the appreciation of all beekeepers acquainted with the German language," says the Bee World (January, 1923). "The Archiv fur Bienenkunde, now in its fifth volume, is of as high grade as any bee journal which comes from abroad, dealing especially with the scientific aspects of beekeeping," says Gleanings in Bee Culture (February, 1923). Annual subscription, \$1. Specimen copy free. Publisher, Theodor Fisher, Freiburg im Breisgau, Kirchstrasse 31, Germany.

THE DADANT SYSTEM IN ITALIAN—The "Dadant System of Beekeeping" is now published in Italian, "Il Sistema d'Apicoltura Dadant." Send orders to the American Bee Journal. Price \$1.00.

WANTED

WANTED—First quality heavy bodied basswood honey in 60-pound containers. Signed, A. I. Root Company of Iowa, Council Bluffs, Iowa.

WANTED—Old bee books.
Prof. Francis Jager,
University Farm, St. Paul, Minn.

WANT to buy No. 1 extracted honey and also comb honey. Write to Emil Strudel, 1693 19th St., Milwaukee, Wis.

WANTED—Situation; experienced beekeeper, age 26, capable queen breeder. If you are in need of an honest, dependable man, with plenty of "go-ahead," write W, care American Bee Journal, Hamilton, Ill.

HONEY IN PAILS—
Atwater, Meridian, Idaho.

HONEY—State price and send sample.
Paul Thomae, 1157 Third St.,
Milwaukee, Wis.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5¢ a pound for wax rendering.
Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—Car or less lots of clover honey; mail sample and quote lowest cash price.
A. W. Smith, Birmingham, Mich.

HONEY—Quote price car loads and less. Send sample.
Hofmann Bros., Produce Co., St. Louis, Mo.

Lend a Hand!

We take the following from "Gleanings":

Ed. Mitchell is a beekeeper. His address is Castalia, Ohio. He has a wife and nine children, the youngest a baby. His aged father lives with them. The homestead comprised four or five acres of orchard and truck land, together with house, barn and other small buildings, making an humble but happy home. It meant the dreams and hopes and toil of many years. The future was looking brighter.

I have come from this place which was once this home. A different picture now. On June 29, while Mr. Mitchell and wife were in a nearby town, the terrific tornado that devastated portions of northern Ohio, tore a path of destruction for miles, which struck this home squarely. House, household goods, barn, bee supplies, fifty stands of bees, peach orchard, planted crops—all, everything gone but the solid earth. By some miracle none of the family were killed. The grandfather suffered a broken hip, and one child a broken leg.

Friends, were you in such trouble, how would it feel to get some help? It is needed right now. Cash mostly, or at least a can or two of honey for his roadside stand, some bees, or anything to aid this family to have a home once more.

Lend a hand in the cause of our common humanity, addressing Mr. Ed. Mitchell at Castalia, Ohio.

Dr. C. G. Luft, Fremont, Ohio.

The American Bee Journal has sent \$5.00 and C. P. Dadant \$10.00. Send your donation directly to Ed. Mitchell, Castalia, Ohio.

The Texas State Beekeepers' Short Course.

Those beekeepers who attended the Farmers' Short Course at College Station on July 28 to 31, certainly enjoyed a treat. Mr. Parks had arranged what he called an "All Texas Meeting" with only home talent on the program. It was the first time that this experiment had been tried and it proved a huge success. The programs were varied and interesting.

The most enjoyable feature was a "Honey Feed and Beekeepers' Buzz." Samples of choicest honey from all over the state were passed around the banquet table where more than fifty beekeeping men and women,

1924 PRICE LIST OF BEES AND QUEENS

A 1-lb. pkg. and unt. queen, delivered...\$3
A 2-lb. pkg. and unt. queen delivered...\$4.50
A 2-fr. Nuclei with unt. queen, delivered \$6
Same as above, with test. queen deliv...\$7

Strictly nothing but pure Italians shipped.
Untested Queens, \$1 each, or 12 for \$10.
In lots of 100, 75c each.
Golden Bees. R. O. COX, Rutledge, Ala.

Italian Queens

Can also furnish a few Goldens. Untested, \$1.00 each; 6, \$5.50; 12 or more, 90c each. Satisfaction, prompt delivery and safe arrival guaranteed.

RONALD KIRK,
Rt. 1, Box 46, Rockton, Pa.

"Laws Pertaining to the Honeybee"

By Colin P. Campbell.

Just off the press. A complete statement of all legal precedents, court decisions, ordinances, and rules by which the keeping of bees may be governed. Also a full copy of all the legal citations and the complete forms of all the laws governing bee diseases and inspection.

Price, \$3.00—Clothbound.

Published by the American Honey Producers' League. For sale by

The American Bee Journal
HAMILTON, ILLINOIS.

or by the American Honey Producers' League, Madison, Wisconsin.

Thanks for past business. And am booking orders for 1925 at same prices with better stock and service.

JES DALTON
Bordelonville, La.

with the aid of mountains of hot biscuits and plenty of A. & M. College butter, caused them to disappear. Prof. S. W. Bilsing acted as "king-bee" at the board and H. B. Parks took up the role of "king's-jester." Wit and humor prevailed to a late hour.

The honey price and honey crop situation were thoroughly canvassed at the meeting and beekeepers were urged to hold their honey off the market just now and to take advantage of the strong demand and higher prices which all indications promise will soon prevail.

Central Iowa Crop

We had a very cold and dry May, with just enough warm days for the bees to build up almost to the swarming point. Then June came with lots of rain and warm days and a fair flow of nectar. I have one colony requeened July 1, 1923, with Dadant's queen. I have taken off 35 pounds extracted honey and now, at present, there are three supers full ready to take off and one empty one put on July 2nd.

I am trying to build up a demand for extracted honey. I have been getting 18 cents for white clover and alsike blend.

I think prospects good for 200 pounds of extracted per colony, spring count.

I live in a town of 300 inhabitants and keep my bees on my home town lots. I believe this will prove one of our big crop years for this part of the state.

H. H. Springer.

Crop Reports Speeded by Air Mail

With the institution of the air mail comes the "flying crop report." A batch of California reports was recently received at Washington in less than two days, whereas formerly the reports were in transit nearly a week. Use of the air mail in dis-

patching crop reports to Washington will be a tremendous advantage to agriculture and industry, declares W. F. Callander, of the Division of Crop and Livestock Estimates, Bureau of Agricultural Economics. It means not only a great saving in time, but a shortening of the period between the receipt of the reports and the date of their release at Washington. —(From Official Record, U. S. D. A., July 23, 1924).

Advice to Newcomers

"Newcomers to California interested in bee culture imagine that there is 'easy money' in setting up a few stands of bees and letting them coin money while the owner rests. I have had many approach me in the past few months and offer to sell me their equipment for just what it cost them. They were inexperienced and went into the bee business on a venture.

"This year I have 1,200 hives, fine bees, well cared for, in flourishing condition, and in ordinary years I would take off from twenty to thirty tons of honey, which I wholesale by the carload. Recently I had an order for twenty tons and could not fill it because of the scarcity of honey caused by the lack of feed. This dry year will cause me to lose about 50 per cent of my bees and there will be a scarcity of honey for the coming year, and it does not pay to feed over. Two years ago I took off forty tons of honey and probably would nearly reach that mark this year if there were a profusion of the usual mountain flowers."

Mr. Johnson has his 1,200 stands of bees in locations from San Fernando to Owensmouth, in fifteen different locations.—Los Angeles Times, June 22, 1924.

(This is not the first time that California experiences failures, owing to drouth. It shows us that we must always be prepared for reverses. "Make hay while the sun shines.")



"Production Bred" Italian Bees and Queens

Ready June 1. All queen and drone mothers used in breeding are carefully selected. Our queen-rearing methods are strictly up-to-date and we offer you a guaranteed first-class product. Our stock is winning favor as a honey-producing strain wherever it is introduced, both here and abroad.

Untested—1, \$1.00; 12, \$10.00; 50, \$40.00; 100, \$75.00.
Connecticut Valley Apiaries (where the good queens come from).

A. E. CRANDALL

BERLIN, CONN.

ROOT SERVICE FROM CHICAGO

TWENTY-SEVEN RAILROADS MEAN QUICKEST SERVICE FOR YOU

A. I. ROOT COMPANY OF CHICAGO 224-230 W. HURON ST. CHICAGO, ILL.



**Pack Your Honey
in Glass**

"DIAMOND I" Fluted Honey
Jars make the appetizing
qualities of your Honey stand out.
The prospective customer sees
the product itself. His eye is not
stopped and diverted by the con-
tainer.

Most Beekeepers' Supply Houses
carry "Diamond I" Honey Jars in
stock and can supply you prompt-
ly with either ½-lb. or 1-lb. Jars,
complete with tight-fitting caps,
packed in 2-dozen Corrugated Re-
shipping cases.

*If you are unable to secure these
jars from your local distributor,
write us direct.*

DISTRIBUTORS:
Colorado Honey Producers' Ass'n.,
Denver Colorado.
Dadant & Sons, Hamilton, Ill.
G. B. Lewis Company,
328 Broadway, Albany, New York.
G. B. Lewis Company,
408 Twelfth St., Lynchburg, Virginia.
G. B. Lewis Company,
132 Webster Ave., Memphis, Tenn.
G. B. Lewis Company,
Watertown, Wisconsin.
G. B. Lewis Company,
415 S. St. Francis St., Wichita, Kansas.
Texas Honey Producers' Ass'n.,
San Antonio, Texas.

Illinois Glass Company
ALTON, ILLINOIS

QUINN'S QUEENS of QUALITY

Have no superior. "There's a reason"; are Mendelian bred, good qualities accentuated, GRAY CAUCASIANS, GRAY CARNIOLANS, GRAY LOWER AUSTRIAN queens. Queens imported in 1923, insure extreme vigor. Laws of heredity strictly observed. My queens are produced by selective breeding, in accord with these laws of nature that must be understood and applied before the best can be had, and is found only in Quinn's Quality Queens. A trial will convince YOU of their value, as satisfied patrons testify by repeat orders. Internationally known the world over.

CHAS. W. QUINN

Powhatan, Va.

TODAY

When planning to requeen, will you take into consideration the value, to you, of the planning we did 32 years ago?

When laying the foundation of our strain **THRIFTINESS** was not forgotten.

In the 32 years that have passed careful selecting and breeding have improved on the fine qualities of our bees until today we have a strain of **THRIFTY** bees that is **surpassed by none, but superior to many.**

We offer you the best of a life's work and study among the bees.

If today you decide to requeen with Forehand's Three-Bands—The Thrifty Kind—you will experience satisfaction in your wintering and in the harvesting of your 1925 honey crop.

Untested Queens: 1, 90c; 12 to 24, 75c; 25 to 99, 70c; 100 up, 60c.

Select Untested: 1, \$1; 12 to 24, 90c; 25 up, 85c.

W. J. FOREHAND & SONS

Fort Deposit, Alabama.

MACK'S QUEENS

Are bringing repeat orders from old as well as new customers. One customer in Wisconsin declares they are the best queens that ever came into that country. Once you try them you will be a regular customer. Satisfaction guaranteed.

	1-49	50-99	100 up
Select Untested	1.25 ea.	1.20 ea.	1.15 ea.
Untested	\$1.00 ea.	\$.95 ea.	\$.90 ea.

HERMAN McCONNELL

(The Bee and Honey Man)

Robinson, Illinois

Every year the practical information in each past volume of the American Bee Journal becomes more useful.

We have secured a stock of very durable, laced, marble-board binders in attractive colors. Each binder will hold three volumes of the Journal. Bound in this way your Journals slip into the library shelves like regular books and are thus permanently saved.

These are available to our subscribers for the low price of 75c each.

AMERICAN BEE JOURNAL,
Hamilton, Ill.

MR. BEEKEEPER!

Your Combs are your Greatest Asset. Save them all

IF THEY ARE INFECTED WITH AMERICAN FOULBROOD
USE

HUTZELMAN'S SOLUTION

Order from your nearest dealer

For full information write

J. C. HUTZELMAN, GLENDALE, OHIO



"Italian Queens, the best I know how to produce."

SEPTEMBER RE-QUEENING

Replace those old or inferior queens in your yard with our High Grade Italians. It will be a splendid investment and mean dollars to you in the years to come, as well as great satisfaction in having prolific queens whose bees are gentle and beautiful. Remember, too, a September queen is in every way equal to a queen reared the following season, prolific, and with a little care non-swarmling. Moreover, we guarantee every queen we send out.

"Our Breeding Queen Guarantee for the season" plan is proving very popular. I now, for the first time, extend this guarantee to the breeding queens purchased in September for the following season. Write for our Literature.

Prices for the remainder of the season: 1 to 4, \$1.50 each; 5 to 9, \$1.45 each; 10 to 20, \$1.40 each; 25 to 49, \$1.35 each; 50 to 74, \$1.30 each; 75 to 99, \$1.25 each; 100 or more, \$1.20 each. Breeding queens, service guaranteed for 1925, \$10 each.

JAY SMITH, VINCENNES, IND.
ROUTE 3

Achord Queens for September Re-Queening SELECT UNTESTED 50c EACH, ANY NUMBER

At these prices you cannot afford to put your bees into winter quarters without vigorous young Italians queens. We have them ready to send by return mail. Safe arrival guaranteed. You cannot buy better stock or better queens.

W. D. ACHORD, Fitzpatrick, Alabama

Sullivan County, Ind., Meeting

The Sullivan County Beekeepers' Association will hold an all-day field meet, September 18, at Mr. A. T. Osburne's apiary, two and a half

miles southwest of Shelburn, Ind. C. O. Yost, Inspector of Apiaries for Indiana, will be there for the day. Beekeepers should come early and bring well filled baskets.

FOREST FIRES MENACE CALIFORNIA APIARIES

Bee owners in California are facing severe losses in California due to the serious forest fires throughout the state. Already a number of apiaries have fallen in the path of the flames and many thousands of acres of clover land have been burned over. With several fires still raging and the two worst fire months to come, the situation daily becomes more serious.

A devastating drought is responsible for the new menace to the hives as well as their poor condition. In many sections of the state bees have been dying because of the parched lands.

The 1924 honey crop of California is estimated at two million pounds, but unless the forest fires are soon checked it will fall far short of this. Ordinarily the yield of the state is in the neighborhood of six and a half million pounds. Since the record crop of 1920 that brought 9,750,000 pounds there has been a scant yield.

Governor Richardson has been severely criticised by bee owners for his attitude in regard to the forest fires. He steadily refuses to recognize the hazard and when the United States District Forester called upon the Government for Federal troops to help keep the fires in control Governor Richardson refused an offer from President Coolidge to lend national aid. Bee owners are now bringing pressure upon the state executive to relieve the situation.

Chas. F. Berry.
Monrovia, Calif.

North Carolina Meeting

The summer meeting of the North Carolina State Beekeepers' Association will be held in Winston-Salem on September 10th. A good program is being arranged and a large attendance is expected. The Secretary, J. E. Eckert, Raleigh, N. C., will gladly furnish additional information if desired by interested beekeepers.

Things Hustle in the Empire State

According to R. B. Willson, the wide-awake beeman of Cornell University, the newly perfected New York State Marketing Association, through an agent, has arranged to have a selling organization canvass every home in the city of Brooklyn with Blossomsweet honey.

We thought we had tackled a big thing when we canvassed our little town. Let's see what the folks do in Brooklyn. I venture the opinion that it will be a huge success and we will have to ask Willson to tell us about it when it is over.

This same marketing organization has made plans to sell honey regularly in the city of London. I guess they named New York State rightly—the Empire State.

How Shall the Crop be Packed?

FOR EXTRACTED

Glass Jars, Tin Cans and Pails

FOR COMB

Glass Front Cases, All-Wood Cases

We manufacture cases from BRIGHT, CLEAR, SOFT WHITE PINE. They have *one-piece* tops, bottoms and backs. They're supremely better!

We also make cases for extracted honey—all sizes. Write for prices, stating quantities desired.

SUPERIOR HONEY COMPANY, Ogden, Utah
IDAHO FALLS, IDAHO

"The Queen is the Soul of the Colony"

This year we are offering the beekeepers of America the best requeening stock that we have ever had. Root queens are known for their wonderful honey-gathering qualities. Now is when you should prepare for next year's crop of honey. Root queens are cheap when one considers the possibilities of securing the maximum honey crop.

Note the Reduced Prices Below

	Quantity: 7 to 24	25 to 49	50 to 99	100 or over
Untested	\$1.00 each.	\$.90 each.	\$.85 each.	\$.75 each.
Select Untested	1.50 each.	1.40 each.	1.10 each.	1.00 each.
Tested	2.50 each.	2.10 each.	2.00 each.	1.85 each.
Select Tested	3.00 each.	2.55 each.	2.40 each.	2.25 each.

We are so confident about the quality of our queens that we will replace any queen that does not prove to be satisfactory within two months from date of purchase.

Order Your Root Quality Queens Now

The A. I. Root Company, APIARY DEPT. Medina, Ohio

SUPERIOR ITALIAN QUEENS

50c EACH, ANY QUANTITY

These queens carry our broad guarantee as to quality, and every effort will be made to give you prompt shipment, but if we get behind, your order will be acknowledged and you will be notified when shipment will be made.

Just for FUN send us a list of the bee supplies you will need and let us quote you.

THE STOVER APIARIES, MAYHEW, MISS.

HONEY CONTAINERS

5-lb. friction top pails, per reshipping case of 12	\$ 1.10
10-lb. friction top pails, per reshipping case of 6	.90
5-lb. friction top pails, per crate of 100	6.75
5-lb. friction top pails, per crate of 200	13.50
10-lb. friction top pails, per crate of 100	10.00
60-lb. square honey cans, per case of 2 cans	1.25
60-lb. square honey cans, per case of 1 can	.80
60-lb. square honey cans, in bulk, each	.40
16-oz. round glass jars, per reshipping case of 24	1.25
6½-oz. tin top tumblers, per reshipping case of 48	1.60

Prices F. O. B. Boyd, Wis.

Write for prices on comb-honey shipping cases.

Our cases are neat, smooth and strong, made of white winter sawed basswood.
Sections

No. 2 4¼x4¼x1¾ two beeway sections, per M \$9.00

We have an over-supply of these sections and are offering them at this reduced price for a limited time only.

We carry a full line of Bee Supplies. Write for our free descriptive catalog and price list.

AUGUST LOTZ, COMPANY, Boyd, Wis.

QUEENS

BERRY SELECT QUALITY

QUEENS

We offer at before the War prices. Attention!

1 to 12 at 60c each; 12 to 50 at 55c each; 50 up, 50c each.

After 28 years of select breeding, our strain of three-banded bees continues to excel for gentleness, disease-resisting qualities and honey production. These queens are reared by Berry, in person, and are truly "Berry Queens." "Nough said."

We guarantee every queen we send out to give entire satisfaction. Otherwise we will cheerfully replace, free of charge, or refund the cash price paid us. Wings of queens we clip, free of charge, for the asking. Descriptive price list on request.

M. C. BERRY & CO., BOX 697, MONTGOMERY, ALABAMA

This is your Honey Can

STURDILY built, fitted with Friction top, easy to open and close. Body decorated in bright colors—Red, Green and Gold Lacquer. Sanitary enameled inside to protect your honey—and you can buy them in quantities to suit your needs.

In quantities as low as 100 you can have your name stencilled. This makes it Your Honey; buyers will reorder your brand.

Practical honey men have found this package a real sales help. If you have not used this special design honey package this year, make a note to get posted on it before next season.

Any Canco office can inform you.



Canco special honey package—3 sizes: 2½ lb. cans, 5 and 10 lb. pails. It helps sell honey.

American Can Company

NEW YORK CHICAGO SAN FRANCISCO PORTLAND, ORE.

American Can

CONTAINERS OF TIN PLATE • BLACK IRON • GALVANIZED IRON • FIBRE



BURR COMBS

The Hobbies We Ride

By Frank C. Pellett.

Dear Harris:

It seems like a long time since we used to be neighbors and sat on the porch in the evening and compared notes on the latest antics of the babies. We each had one then. Mine has grown up and he and his two younger brothers have finished high school and the only girl has celebrated her eleventh birthday anniversary. When that first baby came we had a girl's name picked out for him, but it didn't fit and we had quite a job to find a boy's name which would suit. Well, we kept that same name for the next one and it was no better, for it was another boy. I never had any sisters and when the third baby was a boy, also, wife just about made up her mind that there never would be a girl baby come to our house. However, she still saved that name, "Ruth," for the next time, and sure enough, the fourth baby was a girl. You have never seen Ruth, but since you know that her daddy never had a sister, you can guess that she is just about the boss of the whole outfit. You will be glad to know that my youngest brother has another baby, making five boys in a string. Girls are a scarce article in our family. I think that brother has about given up looking for a girl.

My boss is a great hand to go fishing and hunting. When I go fishing I never catch anything, and I don't care to hunt except with the camera. I have a few bird pictures, however, which I'll bet a dollar would make the boss more trouble to duplicate than it would to get the dead ducks which he brings home.

When I have time for a few days' vacation I always want to go to Sunset Ranch, my farm in Nebraska, and spend the time with my friend Potter, who runs the place. Potter and I make a regular Mutt and Jeff combination. I am a little over five feet tall and weigh something more than a hundred pounds, while Potter is so tall that he has to watch out to avoid bumping his head when he goes through an ordinary door. We had to raise the kitchen ceiling so that he could stand up straight.

Anyway, Potter is about as enthusiastic as I am about new forage crops which promise to be good for

either the bees or the cows. Last year we seeded about forty acres of the new Grundy County sweet clover which we had been hearing so much about. If it proves to be as much earlier than the common kind as they claim, we hope to add two or three weeks to our honeyflow. Sunset Ranch is getting to be a regular experiment station. This year we are trying a small field of Prof. Hughes' new dalea and one of the kudzu that our Florida friend Leach talks so much about, as well as the Cherokee clover or beggarweed which has done so much for light soils of the Gulf Coast. Besides these we have smaller plots of Korean lespedeza, Ladino clover, velvet beans, etc., at the ranch and in my garden at Hamilton.

The whole family seems to be of an investigating turn of mind. Kent, when he was two years old, went out one morning to get acquainted with a cardinal. The bird had been singing in the back yard and he decided to catch it. Soon he came to the house holding something very tight in his little fist and yelling at the top of his voice. His explanations were very much mixed, but he had caught the wrong bird. When his mother pried open his hand she found a yellow-jacket. Well, we try about everything new that seems promising, but sometimes we get stung.

I have been hard up ever since we bought that farm, for every time I get a few dollars ahead we have to put up a new barn or build another mile of fence. It is four miles around the ranch and it takes a lot of cross fences to get the fields down to usable size. Perhaps by the time a fellow gets too old to work, there may be all the buildings and fences we need and maybe the place will begin to pay some of it back. I hope by that time farming will be a more profitable enterprise than it is just now. It is usually a safe rule to get into a game when everybody else wants to get out and figuring on that basis now is a good time to stick to the farm. Anyway, it would be hard to find anyone who would take it off my hands. Several million people have left the farm in recent months and all these folks must be fed and there are less people left to raise the feed.

A big farm is the most interesting place in the world, for there is so much going on. Talk about adventures, a fellow can find a mild sort of adventure every day and the times when he gets kicked by a mule or falls off a hayrack are not always so mild. When you see my boy Kent

ask him to tell you about the night when we went to the pasture to bring in a new colt because a storm was coming up. The pasture was nearly a mile long and half as wide, and when it began to rain the lantern went out. It was darker than it ever gets except on the prairie when it storms and was raining so hard that he was soon drenched in spite of his raincoat. He found the colt all right, but could not tell which way to go to get home and was most of the night finding his way back to the house. Kent has been helping to print honey labels in the American Bee Journal shop for a couple of years, but there is not enough excitement in that kind of life, and he is getting ready to go back to the farm, where there is something going on.


All three of my boys are a good deal like their dad—they like the open country. My second boy, Melvin, has a garden tractor and has all the vacant lots in our end of town in onions, tomatoes and similar stuff. I have spent most of my life on the farm and the rest of it wondering how I ever happened to move to town. When I get out to Sunset Ranch it spoils half my fun thinking how soon I will have to be coming back to the office.

Town life is not so bad in the winter time, for the wind sure gets a dandy swipe at you where it sweeps across those level prairies. We expect to get the best of the wind, though, in time, for we plant some more pine trees every year. Last year we planted 3,000 of them and this year we planted 6,000. With the soaring price of lumber we figure that a good slice of the farm planted to trees will be a good investment. If the present rate of increase in lumber prices continues it will soon be necessary to mortgage the farm to buy a board to patch the pig pen.

Gosh, when I get started talking about the farm I don't know when to stop. Since I have lost your address I will have to print this letter on the gossip page of the Journal. Here I have reached the limits of that page with no room to tell about the wild ducks which nest in the pasture or the coyotes which howl about the place at night or the excitement in the neighborhood when there is a prairie fire—and never a word about Potter's kids. If you happen to be passing through Chambers Valley, stop in and shake hands with Potter. Our farm is just two miles north of the south line of Holt County, near the corner of Garfield and Wheeler Counties. It is a long way from the railroad, but Chambers is a good town. You will know the place by the big "Sunset Honey" sign beside the road.

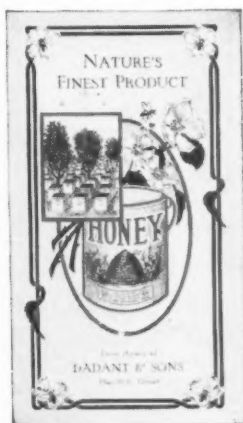
Give my regards to the wife and kids.

A friendly Tip on CYPRESS:-

What you want is lumber that "defies decay." You know there is a species of lumber known everywhere as "The Wood Eternal." Did you also know there is a kind of Cypress that grows far inland, never saw a swamp and has not the same rot-resistant qualities that historically distinguish "Cypress" in your mind? And did you know that the kind you want grows only within 200 miles of the sea-coast and is known as "TIDEWATER" Cypress? This knowledge is vital to your investment. Your insurance of genuine "TIDEWATER" CYPRESS, the actual "Wood Eternal," is the Cypress Arrow Trade-mark identifying every lot, board or bundle. This is it.  With this protection you cannot be misled and will avoid loss and disappointment. **"LET YOUR DEALER KNOW YOU KNOW."** He will respect you — and supply you.

Write us if you have any trouble getting the Genuine Identified "Wood Eternal," the World's Standard Material for Bee-Keepers' uses.

SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION
1251 POYDRAS BUILDING, NEW ORLEANS, LA., or
1251 GRAHAM BUILDING, JACKSONVILLE, FLA.



A four-page honey leaflet of beautiful design at a remarkably low price.

WHEN your honey is harvested you will need to enlist the services of our clever little honey salesmen to help with your marketing. We have a whole force of them—

HONEY LABELS—A variety of forceful designs from which to choose.

HONEY LEAFLET—A four-page story about honey.

"FACTS ABOUT HONEY"—A

sixteen-page booklet, tells the story more in detail.

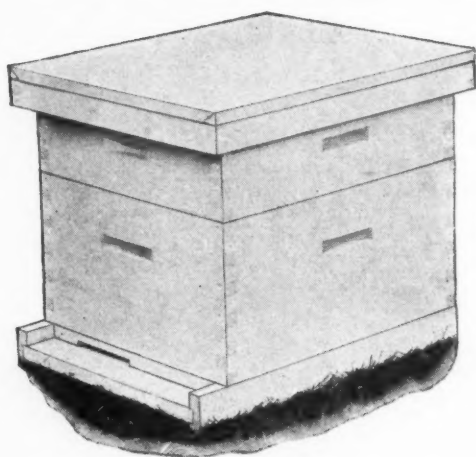
PRINTED STATIONERY—A useful salesman that is often overlooked.

ALSO window signs, posters, etc.

SEND FOR FREE SAMPLES

AMERICAN BEE JOURNAL
HAMILTON, ILLINOIS.

TWO FACTORS THAT STOP WINTER LOSSES



Standard ten-frame hive with regular shallow extracting super as food chamber.

PLENTY OF FOOD

The food chamber hive provides the proper condition for profitable beekeeping. When filled with honey gathered during the early honey flow the bees are assured plenty of the best winter feed. Brood rearing proceeds uninterrupted at all times and the hive is filled with young bees in the fall which will winter well. The food chamber hive is good for all the year.

APRIL.

Automatic feeder. The brood rearing is not curtailed.

MAY.

As the honey is consumed a large brood chamber is provided.

JUNE-JULY.

Filled during the early honey flow, it provides the best food.

AUGUST-SEPTEMBER.

Queen lays longer, providing a strong force of young bees, with no overcrowding in the brood chamber.

OCTOBER.

Automatic feeder free from indigestible matter and better than artificial food.

NOVEMBER-DECEMBER-JANUARY-FEBRUARY.

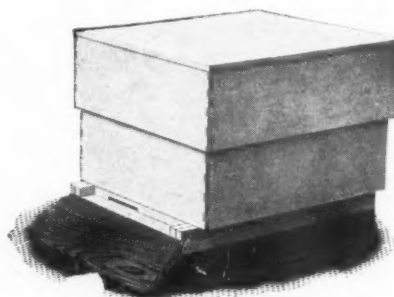
A strong force of young bees winter better. Improper food causes more loss than cold weather.

MARCH.

Abundance of stores means the rearing of brood just as fast as conditions warrant.

PROPER PACKING

October wintering requires proper packing of the hives. Good packing conserves the winter stores and eliminates spring feeding and assures early brood rearing. Standard hives should be wrapped with Slater's felt or placed in winter cases. The Buckeye Hive is a double-walled hive and provides satisfactory protection where the winters are not the severest. We now can supply a packed rim for the Buckeye, making the use of a packed food chamber practicable the year round on this famous hive.



The Buckeye Hive.



Write for booklet—"The Buckeye Hive"

The A. I. Root Company
MEDINA, OHIO

